Historic, archived document

Do not assume content reflects current scientific knowledge, policies, or practices.

X

Copy

UNITED STATES
DEPARTMENT OF AGRICULTURE
CIRCULAR No. 208

Washington, D. C. February, 1932

Has been rev.
--see rev.ed.
binders at
end of file.

MARKET CLASSES AND GRADES OF YEARLING BEEF

By

W. C. DAVIS

Senior Marketing Specialist, Division of Livestock, Meats, and Wool
Bureau of Agricultural Economics

For sale by the Superintendent of Documents, Washington, D. C. - - - - - - - - Price 20 cents

CIRCULAR No. 208 FEBRUARY, 1932
UNITED STATES DEPARTMENT OF AGRICULTURE
WASHINGTON, D. C.

MARKET CLASSES AND GRADES OF YEARLING BEEF

By W. C. Davis, *Senior Marketing Specialist, Division of Livestock, Meats, and Wool, Bureau of Agricultural Economics*

CONTENTS

	Page
Definition of classifying and grading	1
Descriptions of standards for classes and grades of yearling beef carcasses	2
Yearling beef as distinguished from mature beef	2
Distinguishing features of steer and heifer beef	3
Features by which yearling bull carcasses are identified	4
Features by which yearling stag carcasses are identified	4
Standard classes of yearling beef	4
Yearling steer beef	4
Yearling heifer beef	5
Yearling bull beef	5
Yearling stag beef	5
Grading meats in general	5
Definition of grade factors	6
Conformation	6
Finish	7
Quality	7
Range of quality within a grade	7
Grades of yearling beef carcasses	8
Yearling steer beef carcasses	8
Yearling heifer beef carcasses	10
Yearling bull beef carcasses	12
Yearling stag beef carcasses	14
Wholesale cuts of yearling beef	15
Percentage yields of wholesale cuts	16
Grades of wholesale cuts of yearling beef	16
Grades of yearling beef rounds	17
Grades of yearling beef loins	19
Grades of yearling beef ribs	21
Grades of yearling beef chucks	22
Grades of yearling beef plates and briskets	24
Yearling beef shanks	25
Cloth-dressed (shrouded) beef carcasses	26

DEFINITION OF CLASSIFYING AND GRADING

Classifying and grading meats consists in dividing the commodity into lots or groups which have similar and uniform characteristics and which show minimum variations in the essential factors which distinguish one group from other groups. It is an analytical process, going from the general to the particular, a grouping of individual units in such a way that they present the greatest practical uniformity.

Classifying and grading in this work are complementary terms. Both are a part of the same general process, but classification precedes grading. For example, all beef is first divided into a number of large units, such as steer beef, heifer beef, and bull beef. These general units are called classes. That done, each class is subdivided into smaller and more specific groups, such as Prime steer beef, Good steer beef, Medium steer beef, etc. These smaller units are called grades.

87140°—32——1

DESCRIPTIONS OF STANDARDS FOR CLASSES AND GRADES OF YEARLING BEEF CARCASSES

With the trend toward increased marketing and slaughter of younger and lighter-weight cattle there has developed a need for class and grade standards which can be applied to carcasses of yearling beef. The descriptions in Department of Agriculture Bulletin No. 1246 [1] are for mature beef only, and do not include yearling beef, some of which is sometimes called "baby beef."

Because of the influence that age and feed have on the character, consistency, texture, and color of the flesh, carcasses of the bovine species are divided into four groups: Veal, calf, yearling beef, and mature beef.

From the standpoint of economy and practical trade ethics these divisions are necessary. The differences between carcasses of yearling beef and carcasses of mature beef are as great as the differences between veal carcasses and calf carcasses.

Yearling beef differs from mature beef principally in the quantity and distribution of fat, and in the color, texture, and firmness of the flesh. There are also slight differences in conformation. Grade for grade, yearling carcass beef lacks the thickness and evenness of fat which characterize mature beef. Yearling beef also lacks firmness of flesh as compared with mature beef. Yearling beef that possesses marbling generally is lacking in this respect as compared with mature beef of the same grades. The color of the flesh of yearling beef is lighter red and possesses a pinkish tinge which is not found in mature beef. The texture of yearling beef generally is much softer and smoother. The bones in yearling beef are soft and are therefore more easily cut or sawed. The cartilages attached to the spinal column are large, pearly white, and relatively soft.

The use of a different standard for each grade of each group offers no serious difficulty for the grader if he keeps clearly in mind the outstanding characteristics of each of the four groups and their important differences.

There are four classes of yearling beef carcasses: Steer, heifer, bull, and stag. There is no cow class since cows, as the term is generally understood, have passed the yearling stage.

YEARLING BEEF AS DISTINGUISHED FROM MATURE BEEF

The term "beef" as generally used is rather comprehensive. It includes the meat of all classes of bovine animals with the exception of that from vealers and calves. Because of varying degrees of maturity of beef animals, and the transition from calf to beef, no definite and exact age limit can be determined. The varying influences of breed, feed, and environment upon individual animals are responsible for rather wide variations in ages, as to the stage of maturity when a calf changes to a beef animal.

Some calves at 4 months of age, when slaughtered, show very pronounced beef characteristics in the flesh. Others at 7 or 8 months of age, when slaughtered show practically no greater beef characteristics. There is a range of from one to three months in the ages of

[1] Davis, W. C., and Whalin, C. V. MARKET CLASSES AND GRADES OF DRESSED BEEF. U. S. Dept. Agr. Bul. 1246, 48 p., illus. 1924.

animals when some carcasses may be classed as beef and some may be classed as calf carcasses.

The approximate age at which the change takes place is about 6 months. There is also a variation in maximum age of yearling beef animals or when flesh characteristics of mature beef become distinct from the flesh characteristics of yearling beef. In general these changes take place between the ages of 12 and 16 months.

The flesh of yearling beef animals as a class has a lighter red color than does that of mature beef animals. The fat is somewhat whiter, is thinner, and does not cover the carcass to the same extent. For instance, carcasses of mature beef which grade Prime are moderately well covered with fat over practically all exterior parts. Carcasses of the same grade, in the yearling class, are only partially covered, and the fat is thinner. In most cases, covering is lacking on the lower portions of the rounds and over the neck. Proportionately the same differences are found in all other grades of yearling beef and mature beef.

There is also a difference in weight, but this is not a factor that influences the grade. Yearling beef carcasses, being from younger animals, average lighter in weight.

From the standpoint of conformation, yearling beef carcasses, grade for grade, are slightly deficient in some respects. Rounds generally lack the extreme fullness of mature beef, and the muscles along the back are not so uniformly thick. In these respects, however, the differences are slight.

From the standpoint of finish, yearling beef is also deficient as compared with mature beef. In other words, grade for grade, it does not quite reach the degree of fat distribution that is characteristic of mature beef. In general, cut surfaces do not show as high a degree of marbling.

DISTINGUISHING FEATURES OF STEER AND HEIFER BEEF

Sex and sex characteristics are the bases on which all official classes of meat of different kinds have been established. In so far as steer and heifer carcasses of yearling beef are concerned, sex characteristics have not developed to a point at which any appreciable differences in market value are recognized, but there are certain features peculiar to sex by which carcasses of the two classes can be distinguished.

Heifer carcasses as a class have smaller bones, more tapering shanks, and smaller necks. Rounds and loins from heifer carcasses show slightly less fullness, and rounds taper toward the shank more sharply. Heifer carcasses have the udder peculiar to the sex, whereas steer carcasses have the cod fat, but exterior appearances in some instances may be similar. The udder is smooth, whereas the cod fat is generally somewhat rough and irregular in shape. The consistency of the two is markedly different. The udder has, to some extent, the consistency of a very fine sponge and lacks the firm fat of the cod. The cod is composed of solid fat.

The pelvic bone in the hind quarters of heifer carcasses is straighter than the pelvic bone in steer carcasses. In other words, the pelvic bone in steer carcasses has a much more pronounced curve. The upper end of this bone, in heifers, extends nearer the outer

surface of the rump than it does in steers, whereas a part of a lean muscle appears at the upper end of the pelvic bone in steer carcasses. Heifer carcasses do not show this muscle; on the contrary, the end of the bone is surrounded by fat.

In steer carcasses the end of the inguinal ring is present near the posterior point of the aitch or pelvic bone. This ring is always present on the rounds from steer, bull, and stag carcasses.

FEATURES BY WHICH YEARLING BULL CARCASSES ARE IDENTIFIED

Carcasses of yearling bulls are identified largely by the conformation that is peculiar to males of this class. These features are: Heavy bulging rounds with little or no exterior fat covering; relatively large fore quarters in proportion to hind quarters; crest or hump on top of neck; large inguinal ring; and little or no cod fat. The flesh is coarse and usually dark. Its color may range from dark red to dull brown. There is practically no visible intermingling of fat and lean.

FEATURES BY WHICH YEARLING STAG CARCASSES ARE IDENTIFIED

Carcasses of yearling stags are identified by the same general characteristics that are peculiar to mature stag beef. For the most part these characteristics in yearling stag carcasses are not nearly so pronounced as they are in mature stag beef. These features are: Somewhat prominent rounds; heavy, thick muscular hind shanks; heavy thick necks; relatively dark and coarse flesh; a moderate depression in the flat or outer side of rounds; and small cod fat. Yearling-stag carcasses in general, however, are seldom found on the markets.

STANDARD CLASSES OF YEARLING BEEF

The basis for classifying yearling beef is the same as that used for classifying mature beef. Sex and sex characteristics determine the class. Whereas there are five classes of mature beef, there are only four classes of yearling beef, namely, steer, heifer, bull, and stag. Inasmuch as all yearling beef is from relatively young animals, generally under 16 months of age, it is obvious that cow beef does not fall within the general classification of yearling beef. Cow beef, therefore, is never classed as yearling beef.

The bulk of yearling beef comes from steers and heifers. A small percentage of the yearling beef class consists of bull carcasses and a much smaller percentage consists of stag carcasses. Yearling stag carcasses are found only occasionally on the markets of the country.

YEARLING STEER BEEF

Yearling steer beef is from a male that was castrated before sexual maturity had advanced far enough to make reproduction possible. At time of slaughter the animal must have progressed beyond the veal and calf stages, but must not have reached the stage of maturity to be classed as mature beef. Yearling steer beef is distinguished from heifer beef by the characteristics already described as belonging exclusively to males. It is distinguished from mature

steer beef by lighter and thinner covering of fat, smaller kidney knobs, lesser quantities of other interior fats, lighter colored flesh, and less marbling.

YEARLING HEIFER BEEF

Yearling heifer beef is from a relatively young female that has passed beyond the veal and calf stages but has not reached the stage of maturity required for mature heifer beef. Beef of this class is distinguished from steer, bull, or stag beef by all of the general characteristics peculiar to the sex, which have already been pointed out. Yearling heifer beef is superior in conformation, finish, and quality to yearling stag and bull beef. In all these respects yearling heifer beef very closely resembles yearling steer beef. From the standpoint of market values and trade preferences heifer beef of the yearling class compares very favorably with yearling steer beef. As a class heifer beef possesses slightly more fat and somewhat larger kidney knobs. The bones are slightly smaller and possess a greater degree of refinement.

YEARLING BULL BEEF

Yearling bull beef is from an uncastrated male that has advanced far enough toward sexual maturity to make reproduction possible. The outstanding characteristics by which a bull carcass is distinguished from all other beef carcasses are: Heavy muscular development of rounds, shoulders, and neck; excessively heavy fore quarters as compared with hind quarters; dark, coarse-grained flesh; small quantities of interior and intermuscular fats; and thin, uneven distribution of exterior fats. Such a carcass is distinguished from a steer carcass by the absence of cod fat, larger inguinal ring, overdeveloped rounds, and the heavy crest or hump on upper side of the neck. It is distinguished from a stag carcass by the same general characteristics, except that the difference in the size of the crest or hump on the neck is not so great.

YEARLING STAG BEEF

Yearling stag beef is from a male that was not castrated until after sexual male characteristics had developed to a marked degree. The inguinal ring is somewhat smaller than in a bull carcass but is larger than in a steer carcass. Generally yearling stag beef carcasses do not show pronounced male sexual characteristics—at least not in proportion to mature stag beef. One characteristic that is usually pronounced is the crest or hump on the upper side of the neck. The flesh is somewhat coarse and lacks any marked degree of marbling.

GRADING MEATS IN GENERAL

Grading is of value only in so far as uniformity of quality is effected. A good scheme of grading has for its aim the elimination of extreme width or range of quality within a given grade. In the case of a product possessing an unusually wide range of quality a worth-while system of grading necessitates dividing the product into a sufficient number of grades to meet the marketing needs of those who deal in it.

In the case of beef, for instance, the range of quality is so wide as to require a division of the product into seven grades. Marketing practices have demonstrated that a lesser number would not meet the needs of the industry.

Some other meats possess a much narrower range of quality, therefore the various interests from producer to consumer are best served by a fewer number of grades.

One method of grading is followed in all classes of meats—the three factors on which the grades are based are variations in one or more of the fundamental characteristics—conformation, finish, and quality. As a rule, variations occur in all three, but it is possible for two carcasses to be identical with respect to two characteristics and yet be placed in different grades because of variations in the third characteristic.

Of the three fundamental characteristics, quality is the most important. All meats are bought and sold largely on the basis of quality. In the case of beef, many factors are taken into account by the grader before he makes his final determination as to grade, but his main object is to arrive at the degree of quality of the carcass, side, or cut. Quality is the thing with which consumers are most concerned. Quantity of fat and evenness of fat distribution are very important also and may be considered in close relation to quality.

The beef grader first ascertains the sex or sex condition in order to classify the carcass. He then considers the conformation or shape, covering, firmness, color, texture of the meat, and amount and extent of finish. According as a given carcass is deficient or excellent in these respects, he definitely determines its proper grade. Such grading requires years of experience.

The ultimate test of quality comes when the meat is eaten by the final consumer. Fortunately there is such a close relationship between quality and a number of other more obvious and easily determined factors, that it is possible for the grader to determine rather accurately what the degree of quality, or the grade, of a given piece of beef is before it is placed on the table. Finish is easily ascertained, and a high degree of finish almost always accompanies a high degree of excellence in quality. Conformation is a still more obvious characteristic, and excellent conformation and a high degree of finish only rarely are unaccompanied by a corresponding degree of quality. Quality, therefore, is always uppermost in the minds of the grader. Carcasses and cuts are placed in the various grades according as they are deficient or as they excel in conformation, finish, and quality.

DEFINITION OF GRADE FACTORS

The official grades of all meats are based on variations in three grade factors—conformation, finish, and quality. The definitions of these grade terms are given here in order that there may be no misunderstanding or confusion in the mind of the reader concerning the application of the terms as used by all official graders.

CONFORMATION

The term "conformation" refers to the general build, form, shape, and contour or outline of the carcass, side, or cut. Best conformation involves short shanks and neck; deep and plump rounds; thick

and full loins; well-fleshed ribs; and a thickness of flank commensurate with the depth of barrel and chest cavity.

Poor conformation involves angularity in general outline; prominent hip and shoulder bones; long, thin neck, shanks, and rounds; shallow loins; and a decided lack of symmetry in the carcass or side. Conformation is dependent on the skeleton, the depth of flesh, and the thickness and distribution of external fat. Conformation is largely a matter of breeding, although feed and care have an important influence.

FINISH

Finish refers to the thickness, color, character, and distribution of fat. Best finish in yearling beef implies a smooth, thin covering of firm white fat over most of the exterior surface of the carcass. This applies particularly to ribs, loins, and the upper parts of chucks and rounds. It also involves relatively large kidney knobs and generous quantities of crotch and breast fats, also a liberal distribution of wavy fat over the ribs in the chest cavity. Rounds, shanks, neck, and belly are the last portion of the anatomy to be covered with fat; hence seldom is a yearling carcass found that has all parts covered.

Poor finish implies deficiency in external and internal fat, a general absence of marbling, and an uneven distribution or patchy appearance on outer surfaces, or that the fat is soft and yellow instead of firm and white or creamy white. A high degree of finish adds much to the attractiveness of a carcass or cut, but its chief significance lies in the fact that a certain quantity of fat is essential to palatability and tenderness. It is impossible to have beef of high quality, possessing both tenderness and generally satisfying characteristics, unless there is some fat in the beef.

QUALITY

Quality is a characteristic of the flesh and of the fat included therein. It pertains primarily to the thickness, firmness, and strength of both the muscle fiber and the connective tissue. It also involves the quantity, consistency, and character of the juices or extractives which surround and permeate the muscle fiber and connective tissue. It is strongly influenced by marbling or fatty distribution. The latter is due to deposits of well-filled fat cells along the connective tissue and between the muscle fibers.

Best quality in beef implies full, well-developed, firm, muscular, tissue, or flesh with a minimum of strength in fiber and connective tissue.

RANGE OF QUALITY WITHIN A GRADE

Although there are seven grades of beef, all carcasses within a given grade are not exactly alike. A critical examination usually reveals that no two carcasses are exactly alike. Furthermore there is a top and a bottom to every grade. Because of this, experienced beef graders often use such terms as "top Good," "average Good," "low Good," or "top Choice," "average Choice," or "low Choice" when referring to a particular carcass. The same designations apply to all other grades. The upper and lower limits are rather definitely fixed. They permit of no variation on account of season, geographical location, or any other variable factor. To describe

every carcass of beef within a given grade minutely would require a multiplicity of grade descriptions that would be impracticable in trade use.

Neither has it been considered advisable to describe a carcass that is typical of the top of the grade and another that is typical of the bottom of the grade. Such a procedure would leave much to the imagination, particularly if the reader were inexperienced.

Therefore the grade descriptions herein are all based on a carcass which represents the average of, or standard for, the grade. Certain modifications above and below the typical or average carcass herein described are understood.

GRADES OF YEARLING BEEF CARCASSES

Yearling beef carcasses are from beef animals ranging in age from 8 to 16 months. Sometimes quick-maturing, well-developed calves as young as 6 months when slaughtered possess all the yearling beef characteristics to a marked degree. Because of the variable factors, such as different degrees of development, different degrees of maturity, differences in breed characteristics, and failure of different breeds to assimilate feed in exactly the same way, no exact or definite age limit will govern in all cases. At most, age limits are approximate.

Yearling beef carcasses as a class differ from mature beef carcasses, principally in quantity and distribution of finish or fat. This applies to both exterior and interior fats, but it is more pronounced on exterior surfaces. Fat on yearling beef carcasses, grade for grade, is less than on mature beef carcasses of the corresponding grade. Fat on yearling carcasses lacks to some degree the firmness or brittleness of fat on mature beef carcasses. In other words, yearling beef carcasses, although possessing practically the same degree of conformation and quality as mature beef carcasses, do not have as high degree of finish. This is apparent in the thinner covering of exterior fat and proportionately lighter kidney knobs and smaller quantities of crotch and breast fats.

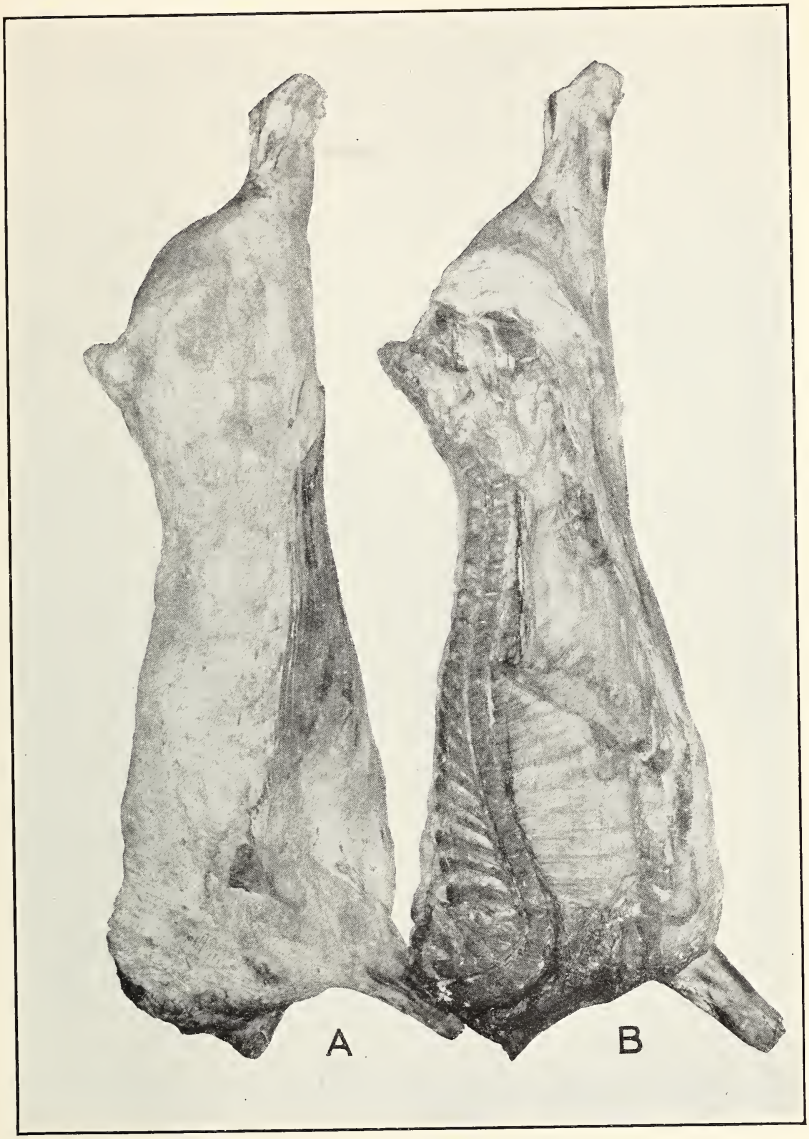
Because of these differences the two classes, yearling beef and mature beef, require separate standards by which carcasses and cuts may be graded correctly. There are four classes of yearling beef. These are steer, heifer, bull, and stag and are based on sex characteristics which a given carcass possesses.

YEARLING STEER BEEF CARCASSES

There are six grades of yearling steer beef. These are Prime or No. A1, Choice or No. 1, Good or No. 2, Medium or No. 3, Common or No. 4, and Cutter or No. 5.

PRIME OR NO. A1 GRADE YEARLING STEER BEEF CARCASS

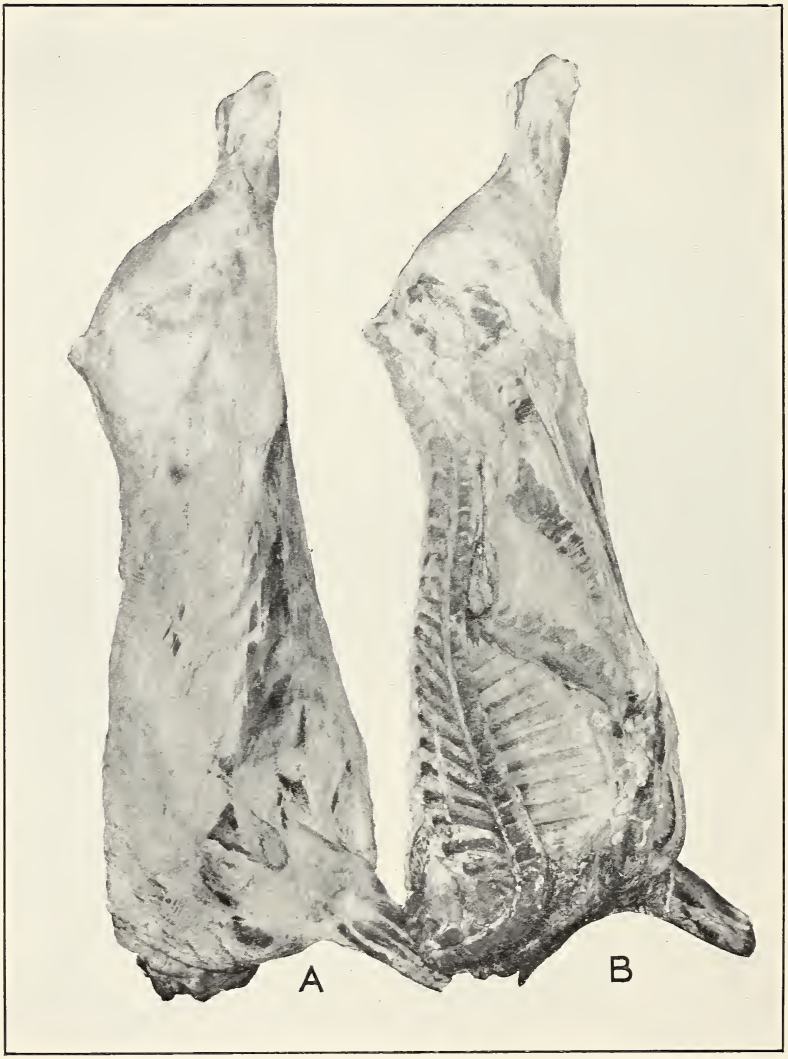
A Prime or No. A1 grade yearling steer beef carcass (pl. 1) reaches or very nearly approaches the ideal in conformation, finish, and quality. It is relatively short and blocky and is heavily and uniformly fleshed throughout. Rounds, loins, and ribs are extremely well developed and rounded; chucks and plates are unusually thick, compact, and heavily fleshed. The neck is very



PRIME GRADE YEARLING STEER BEEF CARCASS

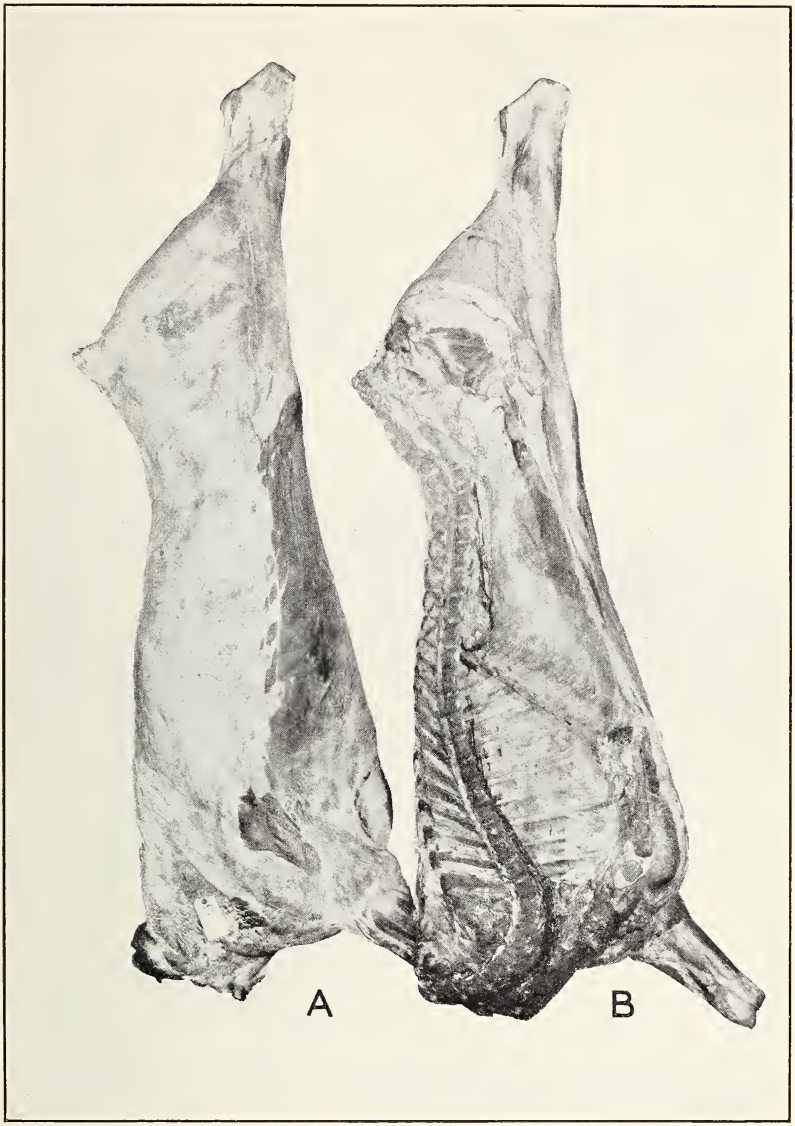
A, Outside view; B, inside view.

87140°—32——2



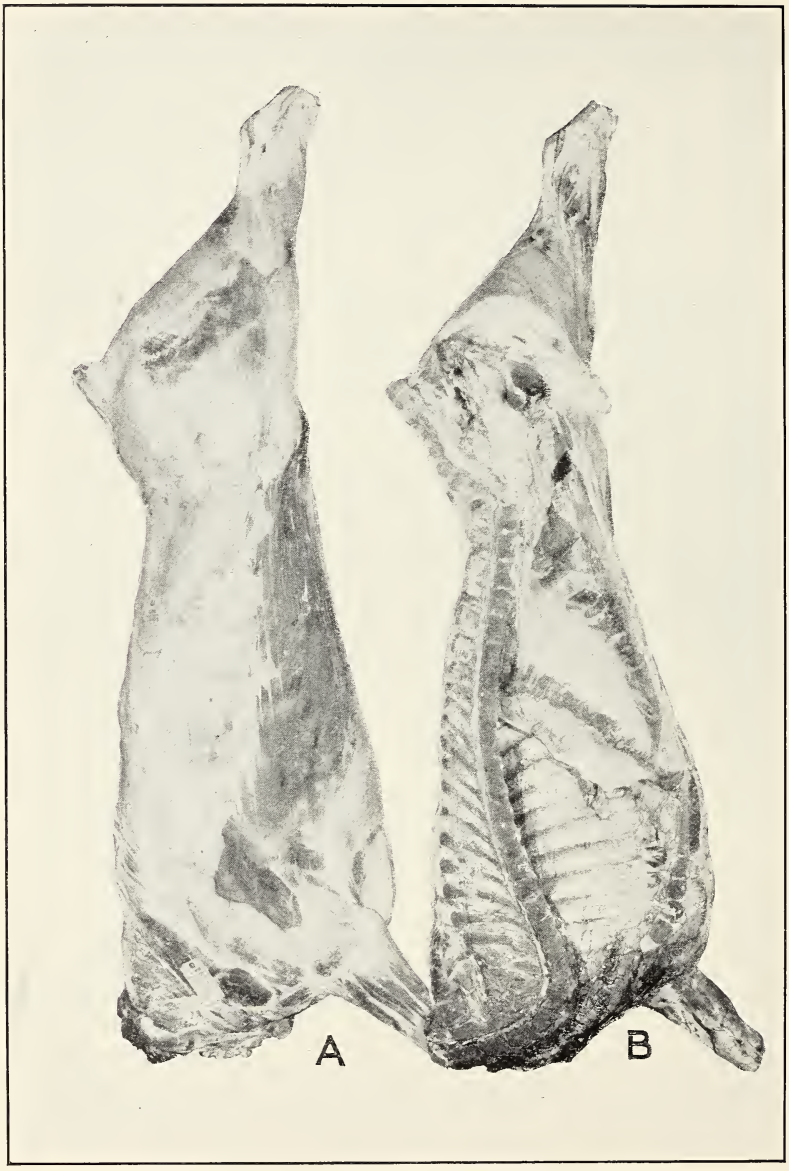
CHOICE GRADE YEARLING STEER BEEF CARCASS

A, Outside view; B, inside view.



GOOD GRADE YEARLING STEER BEEF CARCASS

A, Outside view; B, inside view.



MEDIUM GRADE YEARLING STEER BEEF CARCASS

A, Outside view; B, inside view.

short and plump. Shanks are short and very well muscled. The superior development of the rounds extends well down toward the hock joint, yielding much beyond the average proportion of flesh in that cut. The spinal processes of the chine bones terminate in large, soft, pearly white cartilages. Breastbones exhibit the same characteristic. All exposed bones are soft and red. The finish is excellent but is slightly less in quantity as compared with that of a Prime mature beef carcass. Exterior surfaces of shoulders, briskets, ribs, and loins are evenly covered with a fairly thick layer of moderately firm, smooth, creamy white fat. Rounds usually are not completely covered; the fat diminishes rather sharply toward the shanks. Interior fats are plentiful in the crotch, around the kidneys, on the ribs, and along the breastbones. The flesh is firm, very fine grained, and shows a generous degree of marbling in the thicker muscles, but somewhat less than that possessed by a mature Prime beef carcass. The color of the flesh is light to pale red.

CHOICE OR NO. 1 GRADE YEARLING STEER BEEF CARCASS

A Choice or No. 1 grade yearling steer beef carcass (pl. 2) has excellent conformation, finish, and quality. A Choice yearling steer carcass differs from a Choice mature steer carcass chiefly in quantity and distribution of both exterior and interior fats. A Choice yearling carcass usually possesses a somewhat lower percentage of fat, and the distribution is less extensive. Rounds, loins, and ribs are well developed and plump. Chucks and plates are very thick and heavily fleshed. The neck is short and thick. Shanks are short and well muscled. The cartilages on the chine and breastbones are large, soft, and pearly white. All exposed bones are relatively soft and very red. The exterior fat covering extends well over the loins, ribs, and chucks, but diminishes toward the plates and shanks. Rounds are usually only partially covered. Interior fats are in moderate supply in the crotch, around the kidneys, and on the walls of the fore quarters. All fats are moderately firm and white or may be slightly creamy. The flesh is firm, very fine grained, has a light to pale red color, and shows considerable marbling in the thicker cuts.

GOOD OR NO. 2 GRADE YEARLING STEER BEEF CARCASS

A Good or No. 2 grade yearling steer beef carcass (pl. 3) has good conformation, finish, and quality. It is slightly deficient in finish as compared with a mature steer carcass of the same grade. The rounds, although reasonably thick and heavily muscled, are not full toward the shank. Loins and ribs are moderately full and plump but may be inclined to flatness. Chucks and plates are broad and moderately thick. The neck is moderately short and thick; the shanks may be somewhat long and slightly tapering. The hip and shoulder joints are slightly visible. The cartilages on the chine and breastbones are large, soft, and pearly white. All exposed bones are relatively soft and red. There is a thin covering of fat over the loins, ribs, chucks, and thicker part of the rounds but usually very little over the plates and briskets. Interior fats are plentiful but are usually not evenly distributed, and may be almost entirely lack-

ing on walls of fore quarters. All fats are moderately firm and white, or may be slightly creamy. The flesh is moderately firm, fine grained, has a light to pale red color, and shows only moderate marbling.

MEDIUM OR NO. 3 GRADE YEARLING STEER BEEF CARCASS

A Medium or No. 3 grade yearling steer carcass (pl. 4) has fair or average conformation, finish, and quality. It is deficient in finish as compared with a mature steer carcass of the same grade. Rounds are usually relatively long and tapering. Loins are somewhat flat or slightly depressed. Ribs, chucks, and plates, although relatively broad, possess average depth of flesh. The neck is long and somewhat thin, and shanks are long and tapering. The cartilages on the chine and breastbones are large, soft, and pearly white. All exposed bones are relatively soft, but may lack redness to a marked degree. There are thin patches of fat on rounds and chucks and a somewhat more even distribution over loins and ribs. Interior fats are unevenly distributed, only slight traces being found on the inner walls as a rule.

The flesh usually is somewhat soft and shows little or no marbling. Its color is light to slightly dark red.

COMMON OR NO. 4 GRADE YEARLING STEER BEEF CARCASS

A Common or No. 4 grade yearling steer beef carcass (pl. 5) has poor conformation, finish, and quality. Outlines are irregular and angular. Bones are pronounced, and the ratio of bone to flesh is moderately high. Hip and shoulder joints are likely to be conspicuous. The ribs are flat, and loins are thin and may be shallow, and are sunken. Rounds, neck, and shanks are long and thinly fleshed. The cartilages on the chine and breastbones are large and white. All exposed bones are relatively soft, but usually lack redness. Such carcasses usually have little exterior or interior visible fats. The flesh is usually soft, somewhat moist, and dark red in color.

CUTTER OR NO. 5 GRADE YEARLING STEER BEEF CARCASS

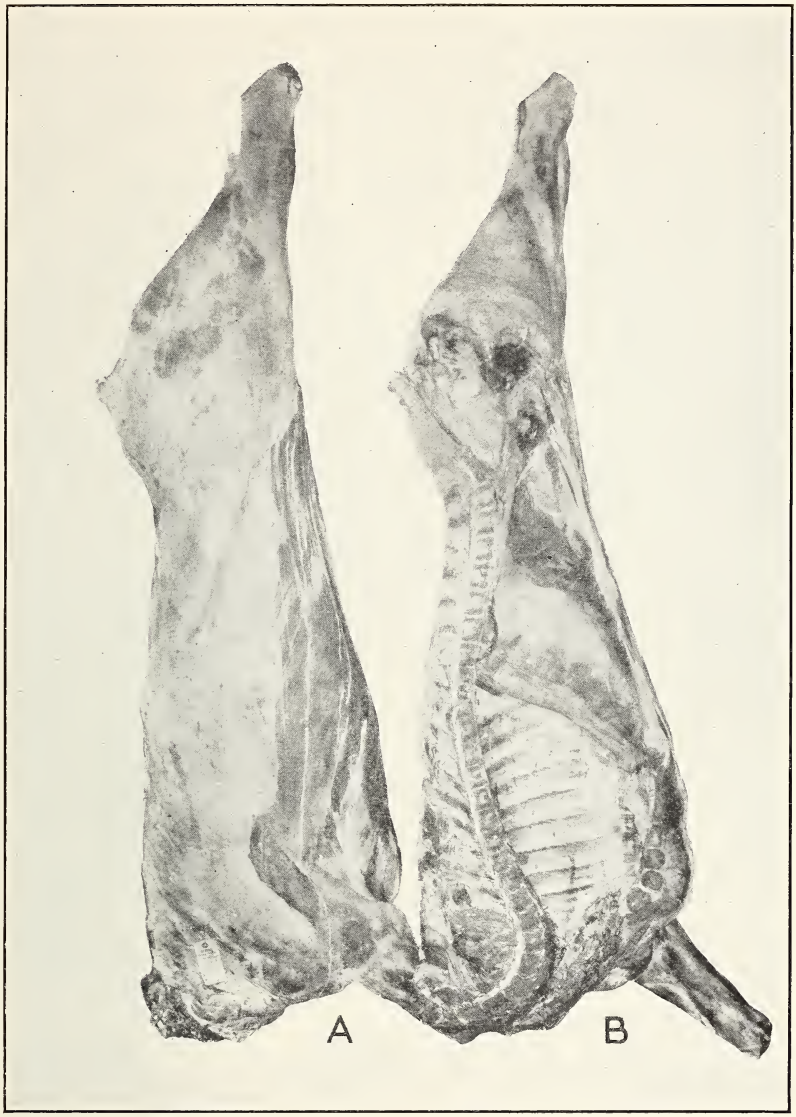
A Cutter or No. 5 grade yearling steer beef carcass has very poor conformation, finish, and quality. Rounds are long, very thin and sharply tapering. Loins are very thin, shallow, and sunken. Ribs are very thin and flat. Chucks and plates are very broad, thin, and shallow. Neck and shanks are very long and thin. All bones are prominent. There is practically no visible exterior and little interior fat. Flesh is very soft and inclined to be watery and dark.

YEARLING HEIFER BEEF CARCASSES

There are six grades of yearling heifer beef. These are Prime or No. A1, Choice or No. 1, Good or No. 2, Medium or No. 3, Common or No. 4, and Cutter or No. 5.

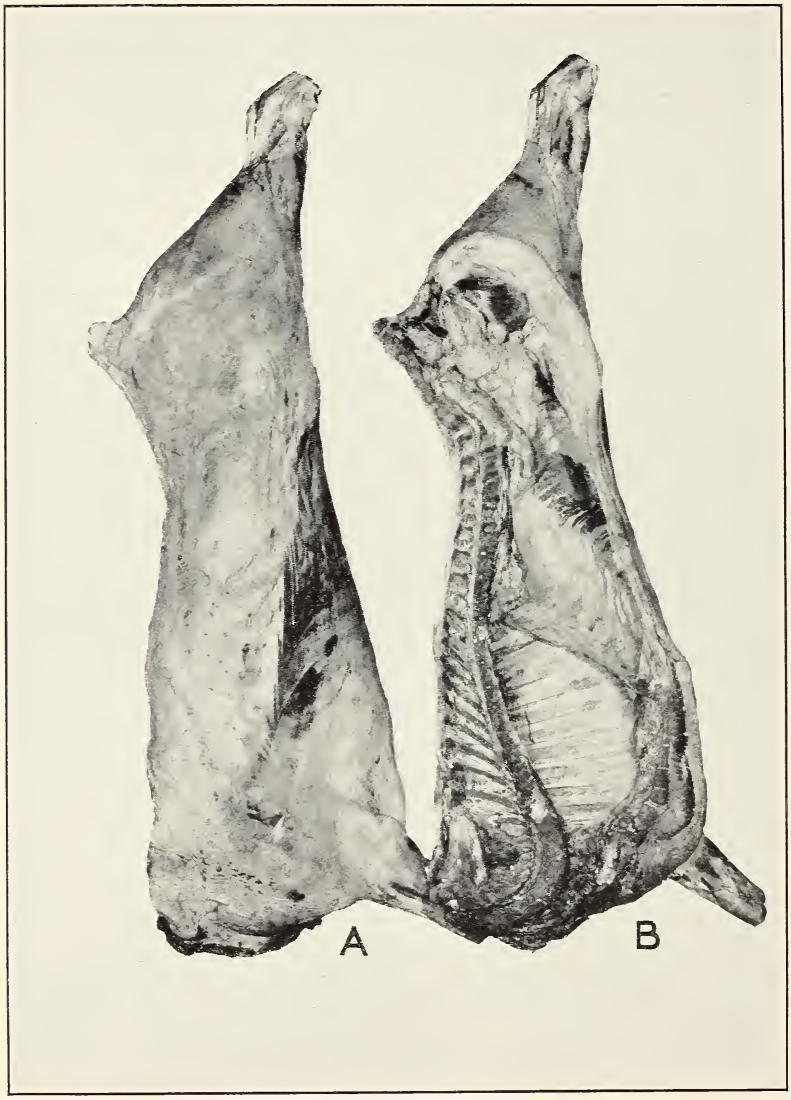
PRIME OR NO. A1 GRADE YEARLING HEIFER BEEF CARCASS

A Prime or No. A1 grade yearling heifer beef carcass (pl. 6) reaches or very nearly approaches the ideal in conformation, finish,



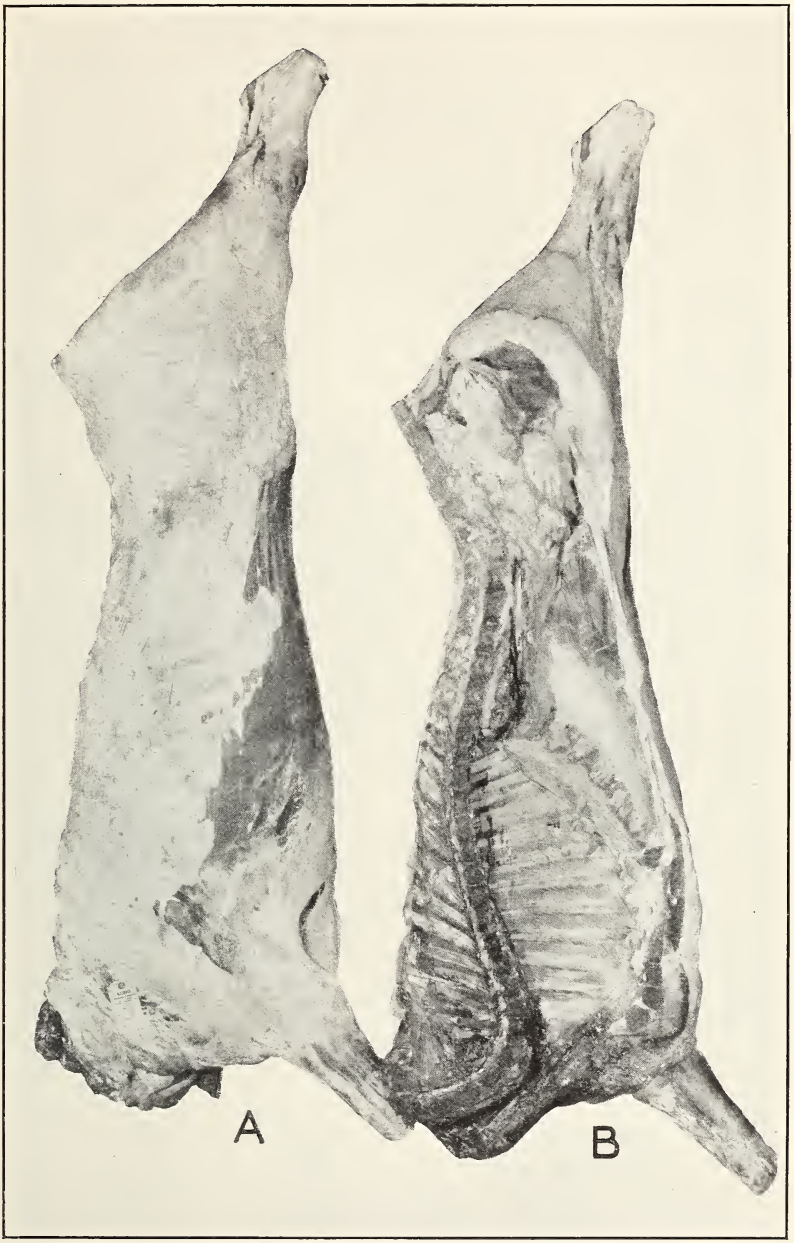
COMMON GRADE YEARLING STEER BEEF CARCASS

A, Outside view; B, inside view.



PRIME GRADE YEARLING HEIFER BEEF CARCASS

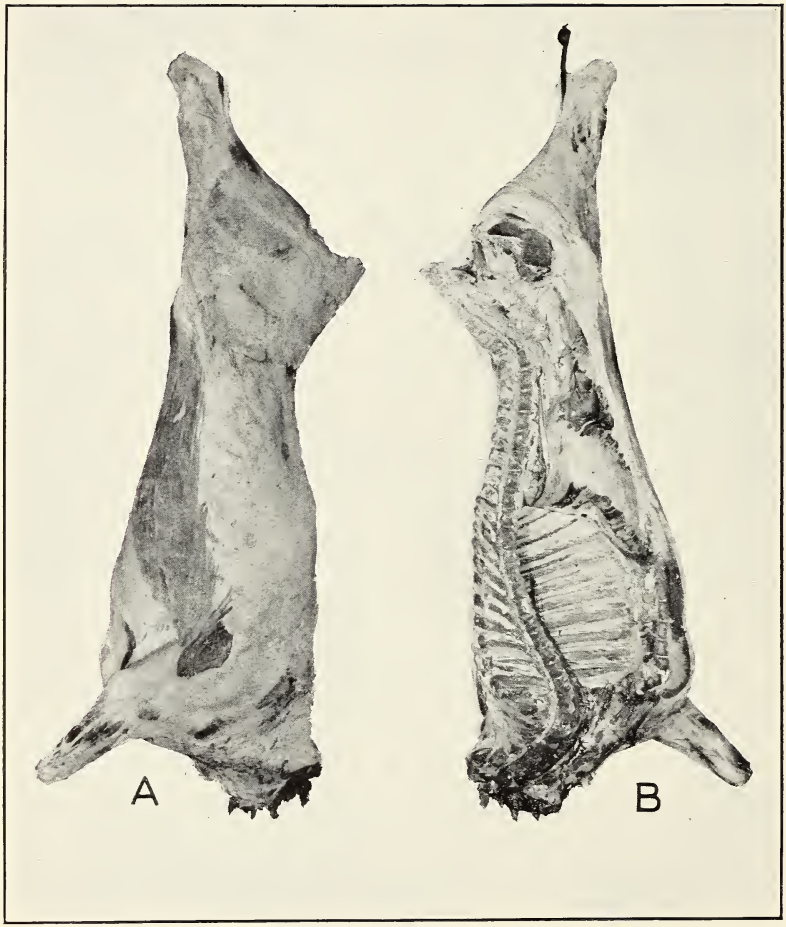
A, Outside view; B, inside view.



CHOICE GRADE YEARLING HEIFER BEEF CARCASS

A, Outside view; B, inside view.

87140°—32——3



GOOD GRADE YEARLING HEIFER BEEF CARCASS

A, Outside view; B, inside view.

and quality. It is relatively short and blocky and is heavily and uniformly fleshed throughout. Rounds, loins, and ribs are exceptionally well developed and rounded. Chucks and plates are thick, compact, and heavily fleshed. The neck is very short and plump. Shanks are very short, stocky, and well fleshed. The superior muscular development of the round extends well down toward the hock joint, yielding much beyond the average proportion of flesh in that cut. Soft, pearly white cartilages are found on the spinal processes of the chine and breastbones. All exposed bones are soft and red.

Finish is excellent, but less than that on mature heifer carcasses of this grade. The exterior surfaces are fairly well covered, except on the lower part of rounds and chucks. The covering is relatively thin and free from bunchiness. The fat is smooth, moderately firm, and white or slightly creamy. Interior fats are plentiful in the region of the kidneys and in the crotch but not excessively wasty. Generous quantities are also found on the interior walls of the fore quarter and along the breastbones. The flesh is firm, fine grained, and velvety and has a light to pale red color. Thicker cuts show a generous quantity of marbling.

CHOICE OR NO. 1 GRADE YEARLING HEIFER BEEF CARCASS

A Choice or No. 1 grade yearling heifer beef carcass (pl. 7) has excellent conformation, finish, and quality. The outlines are smooth and regular and the carcass well proportioned. Rounds, loins, and ribs are thick, full fleshed, and well rounded. Chucks and plates are thick and compact. Shanks and neck are short and plump. The exterior surfaces of shoulders, backs, loins, and the upper part of rounds are covered with a thin layer of moderately firm, smooth, white or slightly creamy colored fat. The covering diminishes toward the shanks, neck, and plates, and these parts are only partially covered. Kidney, crotch, and breast fats are in moderate supply, and the inner walls of the fore quarter are partly covered. The flesh is firm, velvety, and light to pale red in color. The thicker cuts show considerable marbling.

GOOD OR NO. 2 GRADE YEARLING HEIFER BEEF CARCASS

A Good or No. 2 grade yearling heifer beef carcass (pl. 8) has good conformation, finish, and quality. In all respects, however, it is above the average of the class. In outline it may be slightly angular. The carcass is relatively long in proportion to its width and thickness. Hip and shoulder joints are noticeable but not prominent. Ribs, loins, and rounds are moderately thick and full but may be slightly inclined to flatness. The rounds show virtually a straight line from the tail joint to the shank, the latter being proportionately long and tapering. Chucks and plates usually are wide in proportion to the length of the carcass.

The exterior fat covering is somewhat uneven. The thicker cuts, such as loins and ribs, are usually completely covered with a thin covering of moderately firm, white or slightly creamy fat. Other parts of the carcass are usually only partly covered. Kidney, crotch, and breast fats are plentiful, but are less than are found on carcasses of the Choice grade. Walls of fore quarters may be almost entirely lacking in fat, but some evidence of marbling may be present be-

tween the ribs. Usually there is little or no fat covering on shanks, neck, shoulders, and lower rounds. The flesh usually is firm, moderately fine grained, and light to pale red in color. Generally some marbling is present in thicker cuts from carcasses of this grade.

MEDIUM OR NO. 3 GRADE YEARLING HEIFER BEEF CARCASS

A medium or No. 3 grade yearling heifer beef carcass (pl. 9) has fair or average conformation, finish, and quality. It may be somewhat angular in conformation. Rounds are slightly long and tapering. Loins and ribs may be flat or slightly depressed. Chucks and plates are relatively large and wide, and possess only an average depth of flesh. The neck is long and thin, and shanks are long and tapering. The hip and shoulder joints are somewhat prominent. There is a thin covering of fat on ribs and loins, but generally other parts show only small spots or patches of fat. The fat is somewhat soft and usually has a creamy tinge. Interior fats are usually limited to small quantities in the crotch and around the kidneys. The flesh is usually somewhat soft, and its color varies from light to slightly dark red. There is little or no marbling in any parts of the carcass.

COMMON OR NO. 4 GRADE YEARLING HEIFER BEEF CARCASS

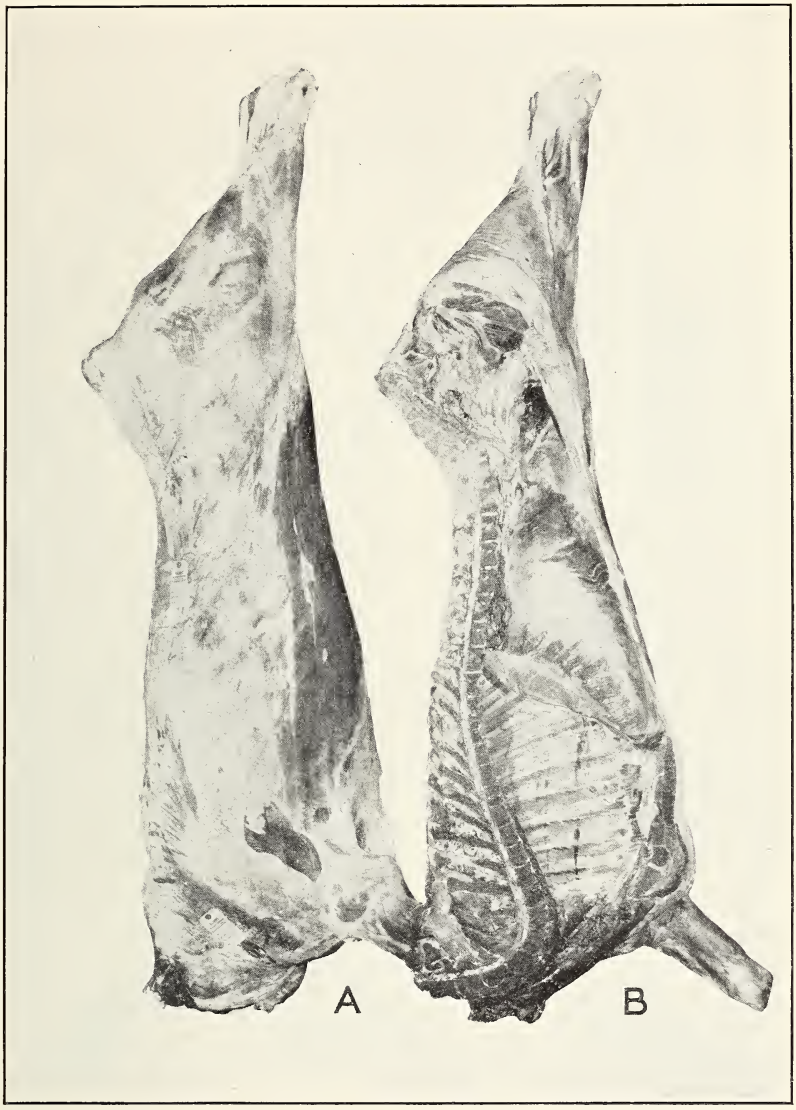
A common or No. 4 grade yearling heifer beef carcass (pl. 10) has poor conformation, finish, and quality. Hip and shoulder joints are generally quite prominent. Ribs are thin and flat, and chucks and plates are broad and thin. Rounds are thin and may be dished or sunken. Loins are flat and shallow. Shanks and neck are long and thinly fleshed. The carcass throughout lacks depth of flesh. A carcass of this grade is unattractive because of the lack of finish. There are usually only small patches of visible fat on any exterior surface, and interior fats generally are scant, except for traces around the kidneys and in the crotch. The flesh is soft and moist, and frequently has a brownish cast.

CUTTER OR NO. 5 GRADE YEARLING HEIFER BEEF CARCASS

A Cutter or No. 5 grade yearling heifer beef carcass has very poor conformation, finish, and quality. Rounds are very long, thin, sunken, and sharply tapering. Loins are very thin or shallow. Ribs are very thin and sunken. Chucks and plates are very broad, thin, and shallow. Neck and shanks are very long and thin. All bones are very prominent. There are no visible exterior or interior fats. The flesh is usually very soft and watery and inclined to be dark.

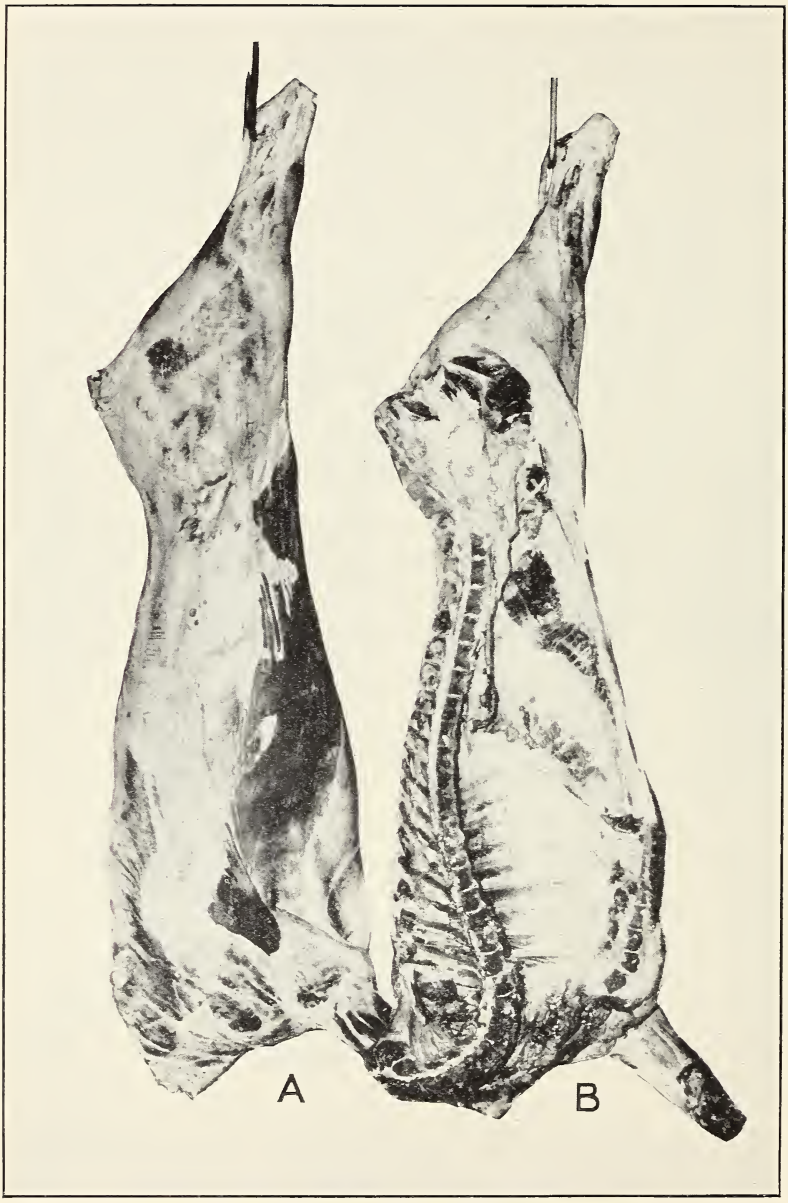
YEARLING BULL BEEF CARCASSES

In general, yearling bulls lack sufficient grade characteristics to qualify for Prime grade. For this reason a description of Prime grade yearling bull beef carcass is not included here. The grades generally recognized are five in number. These are Choice or No. 1, Good or No. 2, Medium or No. 3, Common or No. 4, and Cutter or No. 5.



MEDIUM GRADE YEARLING HEIFER BEEF CARCASS

A, Outside view; B, inside view.



COMMON GRADE YEARLING HEIFER BEEF CARCASS

A, Outside view; B, inside view.

CHOICE OR NO. 1 GRADE YEARLING BULL BEEF CARCASS

A Choice or No. 1 grade yearling bull beef carcass has excellent conformation, finish, and quality for the class. Rounds, chucks, and neck are thick and are very heavily muscled. Loins and ribs are broad, tend to shallowness, and are relatively small in proportion to the rest of the carcass. The exterior surfaces of loins, upper rounds, ribs, and chucks are fairly well covered with a thin covering of moderately firm fat. Its color is white, usually tinged with yellow. There are moderate quantities of interior fats around the kidneys and in the crotch, but usually very little on the inner walls of the fore quarter. The flesh generally is medium red in color, moderately firm, and relatively dry, and ordinarily shows very little or no marbling.

GOOD OR NO. 2 GRADE YEARLING BULL BEEF CARCASS

A Good or No. 2 grade yearling bull beef carcass has good conformation, finish, and quality for the class. Rounds, chucks, and neck are thick and heavily muscled. Loins and ribs are relatively small in proportion to the rest of the carcass and are somewhat flat. Exterior fat covering is limited to a thin layer along the back and over the loins and rumps, but there is scarcely any fat on other outside portions of the carcass. There are moderate quantities of fat around the kidneys and lesser quantities in the crotch and along the breastbones. All fats are somewhat soft and may be slightly moist. Flesh generally is medium red in color, moderately firm, and somewhat dry.

MEDIUM OR NO. 3 GRADE YEARLING BULL BEEF CARCASS

A Medium or No. 3 grade yearling bull beef carcass possesses fair or average conformation, finish, and quality. Rounds, chucks, and neck are moderately thick and full. Loins are relatively thin and flat or sunken. Ribs are moderately thin and flat. Exterior fats are very scant and unevenly distributed. They appear only in thin spots or streaks over the back and on the rumps. Interior fats are also very scant and usually are chiefly limited to small quantities around the kidneys. Traces are sometimes found in the crotch. The flesh is moderately firm and dry. Its color varies from medium red to light brown.

COMMON OR NO. 4 GRADE YEARLING BULL BEEF CARCASS

A Common or No. 4 grade yearling bull beef carcass has poor conformation, finish, and quality. Rounds, chucks, and neck are fairly well developed, but they are deficient as compared with a Medium grade carcass of this class. Loins are very thin and usually very flat or sunken. Ribs are flat and very thin. There are no visible exterior or interior fats except traces around kidneys and in lumbar sections. The exterior surface has a bluish tinge, due principally to a general lack of fat or finish. The flesh is usually dry and very dark, although it may be somewhat soft and watery.

CUTTER OR NO. 5 GRADE YEARLING BULL BEEF CARCASS

A Cutter or No. 5 grade yearling bull beef carcass has very poor conformation, finish, and quality. General outlines are very uneven.

All bones are prominent. Rounds are moderately thick, and loins and ribs are very thin and sunken. There are no visible exterior or interior fats, and the carcass has a decided bluish tinge. The flesh is usually soft and dry and generally lacking in juiciness. Its color is dark and usually has a dull-brownish cast.

YEARLING STAG BEEF CARCASSES

Yearling stag beef as a rule does not reach the state of perfection required for the Prime grade. For this reason a description of this grade has not been included. Five grades are generally recognized. These are Choice or No. 1, Good or No. 2, Medium or No. 3, Common or No. 4, and Cutter or No. 5.

CHOICE OR NO. 1 GRADE YEARLING STAG BEEF CARCASS

A Choice or No. 1 grade yearling stag beef carcass has excellent conformation, finish, and quality for the class. Rounds are thick, full, and bulging. Loins and ribs are moderately thick, and chucks are thick and full. The neck is moderately short and thick. The carcass has a thin covering of white or creamy fat over the shoulders, back, loins, and upper rounds. It diminishes sharply toward the neck, briskets, flanks, and shanks. There are moderate quantities of interior fats in the crotch, around the kidneys, and on the walls of the fore quarters. The flesh is firm, and is light to medium red in color, but usually shows little or no intermixture of fat through the lean.

GOOD OR NO. 2 GRADE YEARLING STAG BEEF CARCASS

A Good or No. 2 grade yearling stag beef carcass has good conformation, finish, and quality for the class. Rounds are moderately thick and full, loins and ribs are fairly well proportioned and have moderate depth of flesh. Chucks are thick, and the neck is moderately thick and short. There is a very thin covering of fat over the back, loins, and rumps, and little or no exterior fat on other parts of the carcass. Small quantities of interior fats are found around the kidneys, with lesser quantities in the crotch and along the breast bones. The flesh is moderately firm, varies in color from light to medium red, and usually shows no marbling.

MEDIUM OR NO. 3 GRADE YEARLING STAG BEEF CARCASS

A Medium or No. 3 grade yearling stag beef carcass has fair conformation, finish, and quality for the class. Rounds, although fairly thick and full, are somewhat tapering. Loins are flat and ribs somewhat thin. Chucks are broad and relatively thin. The distribution of exterior fats is limited to thin spots or streaks on the chucks and along the back and loins. Other portions seldom show any fat covering. Interior fats are limited to small quantities around the kidneys, with occasional traces in the crotch. The flesh is soft and moist. Its color varies from light to medium red.

COMMON OR NO. 4 GRADE YEARLING STAG BEEF CARCASS

A Common or No. 4 grade yearling stag beef carcass has poor conformation, finish, and quality. Rounds are moderately thin and

tapering. Chucks are broad and thin, and ribs are thin and shallow. Loins are thin, flat, and sunken. Both exterior and interior fats are generally very scarce except small spots or streaks on chucks, ribs, and loins, and there may be traces around the kidneys. Generally no fats appear on other portions of the carcass. The flesh is soft and moist. Its color varies from medium to dark red.

CUTTER OR NO. 5 GRADE YEARLING STAG BEEF CARCASS

A Cutter or No. 5 grade yearling stag beef carcass is decidedly deficient in conformation, finish, and quality. Rounds are very thin, long, and tapering. Loins are very flat or sunken, and ribs are thin and flat. Chucks and plates are broad and thin. All bones are very prominent. Both exterior and interior surfaces are generally devoid of visible fat. Occasionally slight traces may be found around the kidneys and in the lumbar sections. The flesh is soft, moist, and usually dark.

WHOLESALE CUTS OF YEARLING BEEF

Yearling beef carcasses are divided into wholesale cuts at the various markets in exactly the same manner as mature beef carcasses. The proportion of the various cuts bears approximately the same percentage relation to the carcass as do those of mature beef. The percentage or yield of cuts varies also according to the grade of the carcass.

In general the grade of a wholesale cut corresponds to the grade of the carcass from which the cut was taken. There are some exceptions, but these are only occasional. For instance, it is possible sometimes to procure a Choice grade rib from a Good grade side. In such cases the rib has the proper thickness, finish, and quality required for the Choice grade. The same may be true of the loin.

Certain cuts may and occasionally do meet the requirements of a higher or lower grade, but because of degrees of deficiency or excellence in conformation, finish, and/or quality of the carcass as a whole, it—as a carcass—grades higher or lower than do some of the cuts in specific instances.

Beef carcasses are first split into sides, and the sides are later divided into quarters. This latter operation is known as ribbing, because the line of severance into hind quarter and fore quarter follows the contour of the rib. In some cases all ribs are left on the fore quarter, in others 1, 2, 3, and sometimes 4 ribs are left on the hind quarter.

These variations are due to customs of the trade at different markets, and most of them are of long standing. It is because of these different methods of ribbing that such wide variations exist in percentages of wholesale cuts at different markets. In the following discussion the Chicago method of cutting is the one referred to unless some other is specified.

The wholesale cuts from a hind quarter are the round, which usually includes the rump, and the full loin, which includes the flank. The loin is further divided into short loin, loin end, and flank. The wholesale cuts from a fore quarter are rib, chuck, plate, brisket, and shank. Other cuts commonly sold in the markets are the cross cut, which includes the chuck, brisket, and shank, and the rattle, which

includes the chuck, plate, brisket, and shank. A back is also cut from the fore quarter, and this includes the chuck and rib. The Chicago method of dividing or "breaking up" quarters into wholesale cuts is the method most generally used. This method has therefore been accepted as best suited as a basis on which to standardize wholesale cuts.

PERCENTAGE YIELDS OF WHOLESALE CUTS

The relation of the wholesale cuts to the carcass, expressed in percentage, varies with the method of cutting. They also vary according to the class and grade of the carcass. The percentages are made to vary in commercial practice to some extent with the shifting of demand and values for the various cuts and with the desire of the market man to get as much money as possible for the beef.

The Chicago method of ribbing leaves one rib on each hind quarter. This results in a division of the carcass into approximately 52 per cent fore quarters and 48 per cent hind quarters for steer and heifer beef. These percentages do not apply in the case of bull and stag beef carcasses. The classes bull and stag have proportionately heavier fore quarters than do steer and heifer carcasses. Information in Table 1 applies to Good grade steer and heifer beef. Slight variations from these data would apply in the case of all lower grades.

TABLE 1.—*Percentages of quarters and wholesale cuts, Chicago and New York*

Chicago		New York	
	Per cent		*Per cent*
Hind quarters (1 rib)	48	Hind quarters (1 rib)	48
Fore quarters (12 ribs)	52	Fore quarters (12 ribs)	52
Total	100	Total	100
Wholesale cuts:		Wholesale cuts:	
Rounds and rumps	24.09	Rounds and rumps	23.00
Loins (full)	16.50	Loins (full)	16.00
Flanks	3.53	Suet (including kidneys)	3.50
Suet (including kidneys)	3.88	Flanks	5.50
Ribs	9.64	Ribs	9.60
Chucks (square cut)	22.15	Chucks (cross cut)	33.70
Plates	8.46	Plates	8.70
Briskets	6.00		
Shanks (fore)	5.75	Total	100.00
Total	100.00		

GRADES OF WHOLESALE CUTS OF YEARLING BEEF

Wholesale cuts of yearling beef are graded in exactly the same manner as carcasses or sides. The grade of a wholesale cut is determined by its conformation or shape, its finish, and its quality. These same factors are used in grading all meats.

In the case of cuts a cross section or cut surface is exposed to view. This simplifies the act of grading because the degree of quality is more readily ascertained. A minute examination of exterior indications of quality in so far as cuts are concerned is therefore unnecessary. The experienced grader ascertains almost instantly by a glance at the cut surface the grade to which a particular cut belongs.

Among the evidences of quality or grade which a cut surface pre-

sents to view are color, texture, grain, marbling, and the relative proportions and character of flesh, fat, and bone.

A dark flesh, for example, generally indicates poor quality, absence of finish, or an overheated or feverish condition or incomplete bleeding at time of slaughter. On the other hand, a light or cherry-red color, a high degree of marbling, or a uniform distribution of white, firm fat in connection with thickness or depth of flesh, indicates a high degree of quality. These factors are readily discernible in cut surfaces.

It is impracticable to discuss the grades of wholesale cuts by classes, as was done in the case of carcasses. There is striking similarity in quality and finish between the corresponding grades of cuts from yearling steer and heifer carcasses. As a rule cuts from heifer carcasses possess a slightly greater percentage of fat, and in some cuts the shape of the bones differs slightly. The bones in heifer carcasses are somewhat smaller and show a greater degree of refinement. Cuts from bull and stag carcasses as a rule have darker and coarser grained and very lean flesh. The outstanding characteristics which differentiate cuts of these classes have been described in connection with the grade descriptions of carcasses.

The grades of wholesale cuts of steer and heifer yearling beef are Prime, Choice, Good, Medium, Common, and Cutter. The grades of wholesale cuts of yearling bull and stag beef are Choice, Good, Medium, Common, and Cutter. There are no Prime yearling bull and stag carcasses and cuts. The wholesale cuts from hind quarters are rounds which include the rump and shank, and the full loins which include the flank and kidney knob. The wholesale cuts from the fore quarters are rib, chuck, plate, brisket, and shank.

GRADES OF YEARLING BEEF ROUNDS

According to the Chicago method of cutting, a beef round represents about 24 per cent of the side and includes the round proper, the rump, and shank. As in other wholesale cuts, the class and grade of a round are determined by the class and grade of the carcass from which it was taken. Steer rounds are distinguished from bull and stag rounds by relatively large or lumpy cod fat and finer-grained, lighter-colored flesh. Steer rounds are distinguished from heifer rounds also by the cod fat in place of the firm bag or udder and by the shape of the aitch bone or pelvic arch. The aitch or pelvic bone in steer rounds is more sharply curved, causing the upper end or tip of the bone to point to an imaginary object, well within the limits of the breast cavity. This bone in heifer rounds is only slightly curved, and by following an imaginary straight line from the upper tip of the bone such a line leaves the carcass at a point well within the limits of the flank on the hind quarter. The presence of the inguinal ring on rounds from the right or closed side of a steer carcass is another means of identification. (Pl. 11.)

PRIME OR NO. A1 GRADE YEARLING BEEF ROUNDS

Prime or No. A1 grade yearling beef rounds have excellent depth of flesh in all parts. In this respect they very nearly approach the ideal. Such rounds are obtained only from animals of superior beef

type that have been specially fattened and finished. Prime rounds appear very short and compact because of their thick, heavy muscular development. The flesh extends well down toward the hock, thus causing the shank to appear short and thick. The exterior covering is only moderately thick on the rump and upper surfaces, and this diminishes sharply toward the shank. Rounds that carry excessive fat as indicated by bunchiness at the tail head or on other portions of the surface are excluded from this grade.

Moderate quantities of marbling are present in the rump and upper portions of a Prime yearling round. The intermuscular fat or fat between the seams is abundant. All fats are relatively firm and creamy or white in color. The flesh is light red, inclining somewhat to a pinkish tinge, very fine grained, generally attractive to the eye, and exceptionally tender.

CHOICE OR NO. 1 GRADE YEARLING BEEF ROUNDS

Choice or No. 1 grade yearling beef rounds differ only slightly from Prime yearling beef rounds in thickness or depth of flesh and fullness. In general, Choice yearling rounds have less exterior, interior, and intermuscular fat. Occasionally rounds that would otherwise grade Prime are placed in a lower grade because of excessive fat; some of these are found in the Choice grade. As compared with a Choice grade mature beef round, a Choice grade yearling beef round has decidedly less exterior fat covering and generally less fat along the muscle seams. All fat is creamy or white in color and moderately firm but not dry or brittle. The flesh is light red, with some evidences of pinkish tinge, is fine grained, soft, and velvety. In general the quality of the flesh compares very favorably with that of Prime yearling rounds, the greatest difference being mostly in the quantity of fat or finish.

GOOD OR NO. 2 GRADE YEARLING BEEF ROUNDS

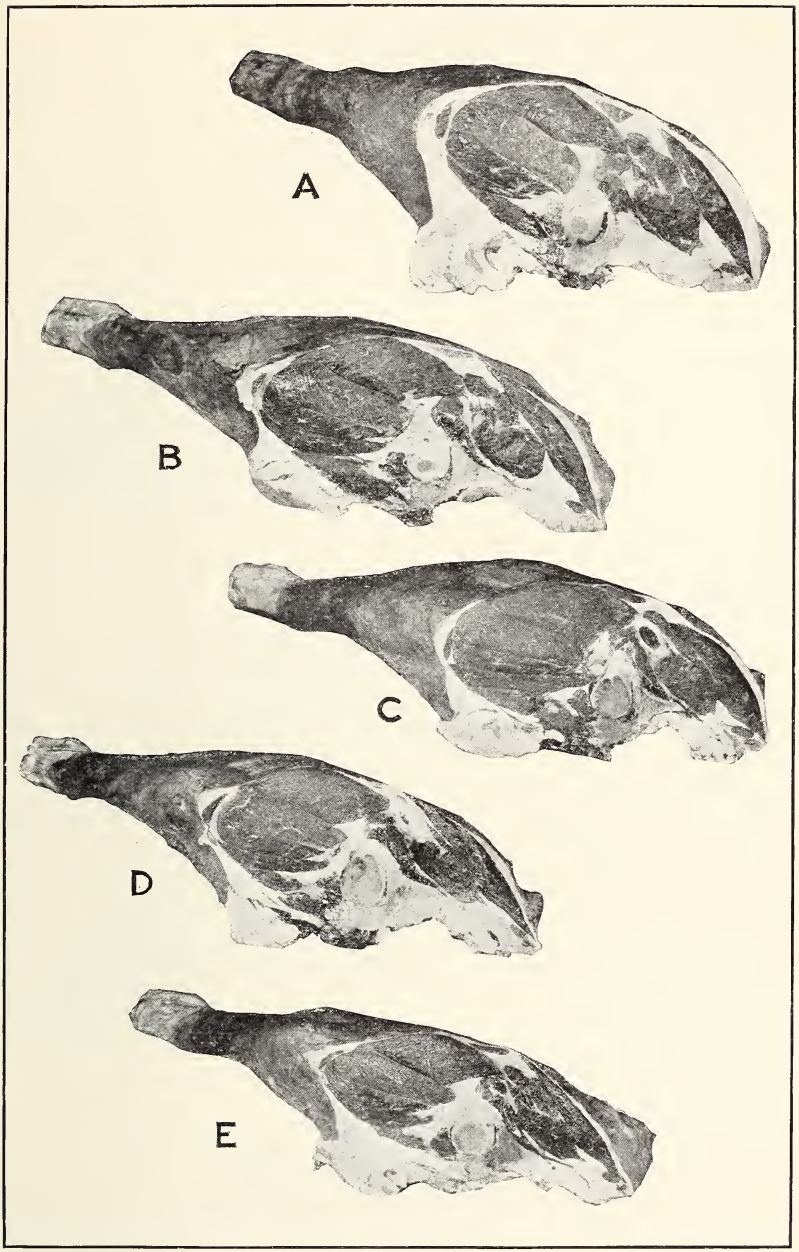
Good or No. 2 grade yearling beef rounds are above the average in depth of flesh, fullness or thickness, and finish. They are, however, deficient in these respects as compared with the Choice grade. Good grade rounds appear somewhat long between the shank and tail head, principally because of lack of fullness. Shanks therefore appear long and are not so well fleshed as are those of the Choice grade.

The exterior fat covering on the rump and upper portions of rounds is generally very thin and diminishes sharply toward the shank. The fat generally is white or creamy, but may have a slight yellow tinge. The latter is generally due to a lack of grain feed and indicates a finish on grass.

The flesh is only moderately firm, and the color over a cut surface lacks uniformity, ranging from light to dark or dull red. It is moderately fine grained and tender. Good grade yearling rounds show only a limited quantity of marbling, and this condition is limited mostly to rounds in the upper half of the grade.

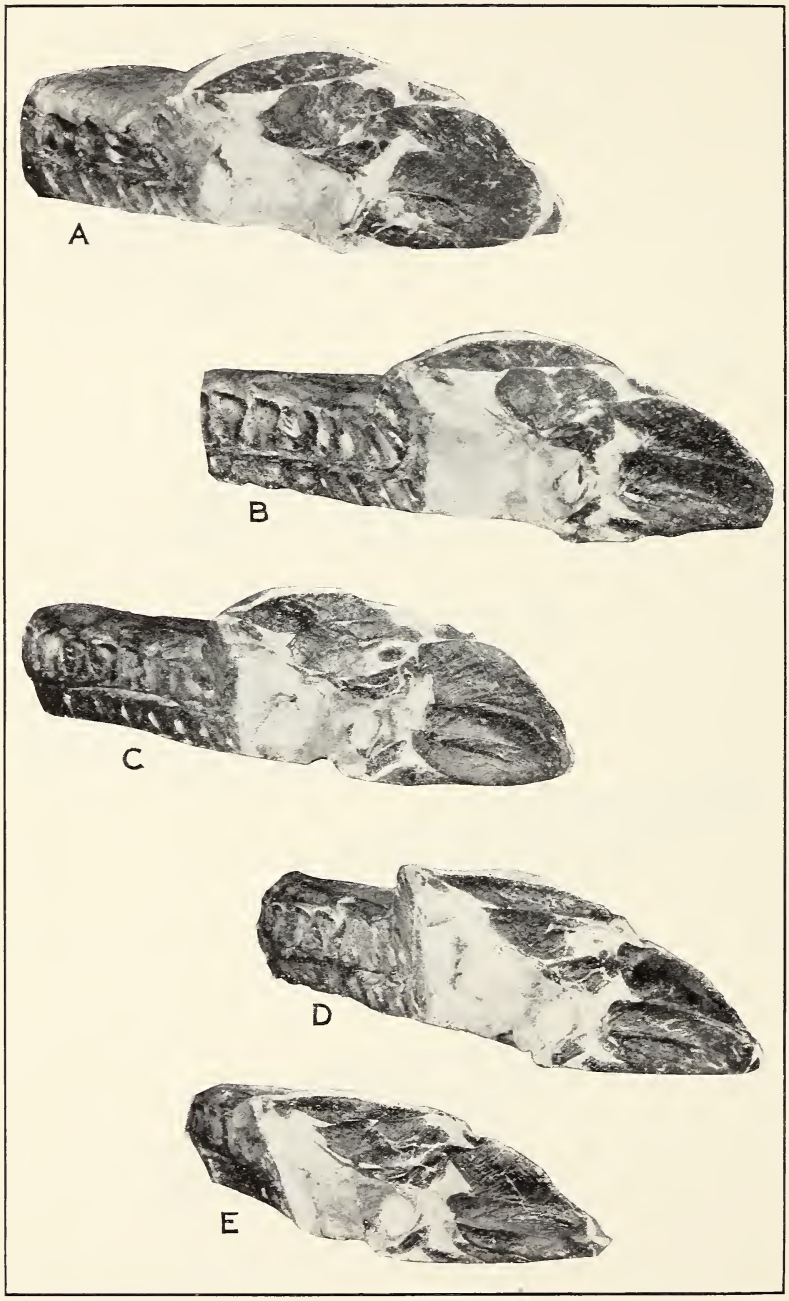
MEDIUM OR NO. 3 GRADE YEARLING BEEF ROUNDS

Medium or No. 3 grade yearling beef rounds possess average depth of flesh and appear long, somewhat flat, and tapering. Exterior fats



YEARLING BEEF ROUNDS

A, Prime; B, choice; C, good; D, medium; E, common.



YEARLING BEEF LOINS

A, Prime; B, choice; C, good; D, medium; E, common.

are unevenly and generally patchily distributed, especially over the rump and upper portion of the round. Lower portions of the round, toward the shank, seldom show any fat covering. Both interior and intermuscular fats are generally very scant, and no marbling is evident. All fats are somewhat soft, varying in color from creamy to a yellowish tinge. The flesh is moist, lacks firmness, and generally has a dark-red color.

COMMON OR NO. 4 GRADE YEARLING BEEF ROUNDS

Common or No. 4 grade yearling beef rounds have poor conformation as indicated by flatness, length in proportion to thickness, and general depth of flesh. Common rounds have practically no exterior fat covering and no visible intermuscular fat. There may be slight traces of fat along the muscle seams, but generally these are very slight. All such fat has a yellow cast and is very soft. The flesh is very soft, moist, and watery. Its color varies from light to dark red and is usually characterized by dullness.

CUTTER OR NO. 5 GRADE YEARLING BEEF ROUNDS

Cutter or No. 5 grade yearling beef rounds constitute only a very small percentage, almost negligible, of the yearling class. They are very long, excessively thin, flat, and dished or sunken. Such rounds are not offered generally to the retail trade. They are wholly lacking in exterior fat and have practically no interior fats. The flesh is dark, moist, watery, and very soft.

GRADES OF YEARLING BEEF LOINS

According to the Chicago method of cutting, the loin represents approximately 17 per cent of the weight of the side. There are variations, depending upon the type and grade of the carcass. The loin contains some of the choicest retail cuts. The loin is subdivided into the "loin end," which is the thick portion next to the round, and the "short loin," which is the portion next to the rib. The retail cuts derived from the loin end are sirloin steaks and sirloin roasts. From the short loin are obtained club steaks, T-bone steaks, and other porterhouse steaks. The T-bone steak is so called because of the T shape of the bone, which lies between the broad muscle of the back and the tenderloin. The grade of the loin generally corresponds to the grade of the carcass from which it was cut. Sometimes, however, a loin from a side, because of a variance in conformation and finish and/or quality, will be of a different grade from the carcass of which it was a part. (Pl. 12.)

PRIME OR NO. A1 GRADE YEARLING BEEF LOINS

Prime or No. A1 grade yearling beef loins have superior conformation, finish, and quality. They are uniformly thick, full, and compact. The exterior fat covering is smooth and evenly distributed. The fat is firm and is white or creamy. Interior fats are plentiful but not excessively wasty. Intermuscular fats are abundant and of excellent quality. The flesh is firm, smooth or velvety, very fine grained, and tender. Its color is light red and slightly tinged with pink. All cut surfaces are characterized by liberal quantities of marbling. A Prime yearling beef loin differs from a Prime mature beef loin principally in thickness and quantity of fat distribution.

CHOICE OR NO. 1 GRADE YEARLING BEEF LOINS

Choice or No. 1 grade yearling beef loins differ only slightly from Prime yearling beef loins. The differences are principally in thickness of fat and fat distribution. Choice yearling beef loins are thick, full, and compact, and are only very slightly deficient in these respects as compared with Prime yearling loins. As compared with Choice mature beef loins, Choice yearling beef loins possess a thinner covering of fat, somewhat softer fat, and less fat distribution through the lean meat. The flesh is firm, has a very fine texture or grain, and is light red in color, slightly tinged with pink. It possesses all those characteristics which make the cut surface attractive to the eye.

GOOD OR NO. 2 GRADE YEARLING BEEF LOINS

Good or No. 2 grade yearling beef loins are above the average in thickness, fullness, quality, and finish. As compared with Choice loins, Good loins are somewhat flat and slightly lacking in depth of flesh. They are moderately well rounded, but appear proportionately longer than Choice loins. The exterior surface is generally well covered with a moderately thin layer of smooth white or creamy fat. The flesh is moderately firm and fine grained, but lacks the degree of marbling that is characteristic of Choice loins. The color varies somewhat from light red to dark red, and muscles show a slight inclination to slip or protrude. On the whole, the finish and quality are sufficient to satisfy most consumers.

MEDIUM OR NO. 3 GRADE YEARLING BEEF LOINS

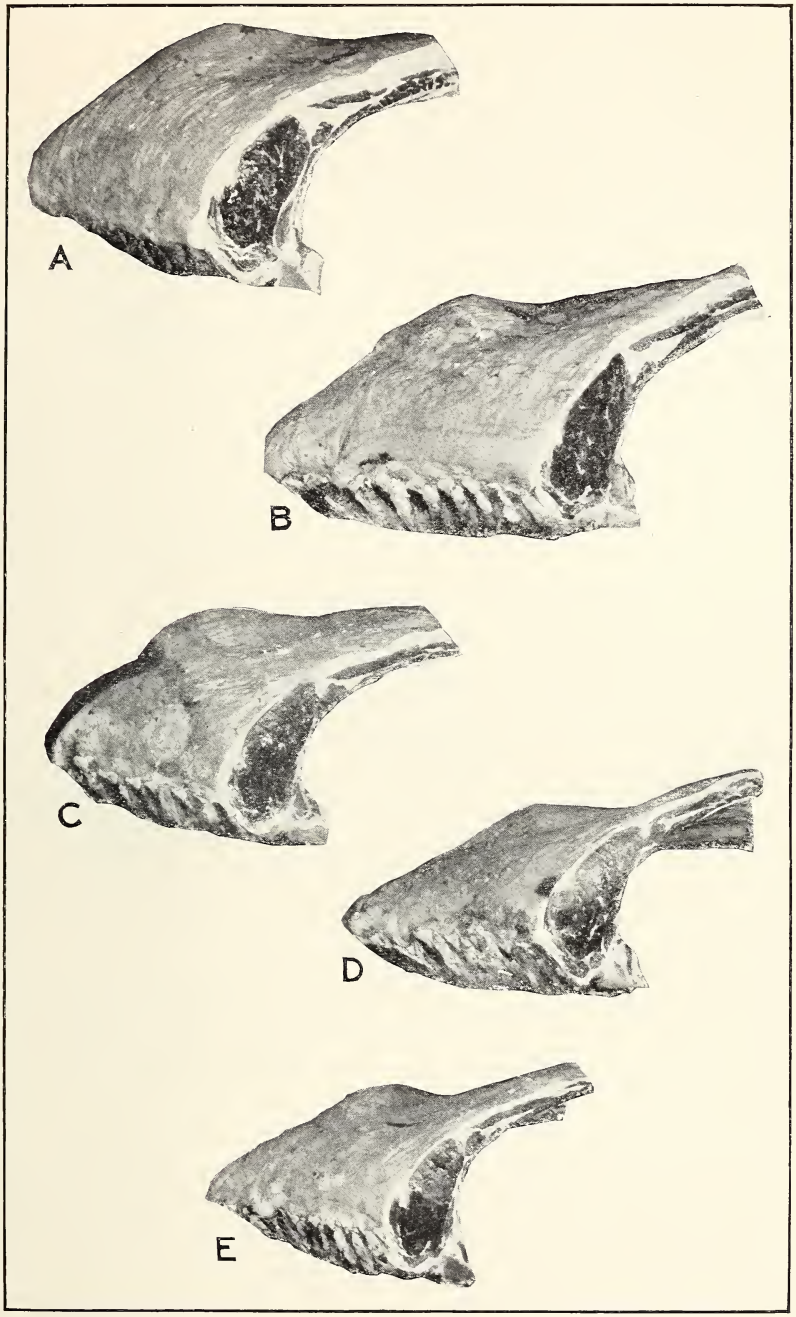
Medium or No. 3 grade yearling beef loins have average depth of flesh, are somewhat angular, and lack the compactness of the better grades. The outer surface is flat and slightly dished or sunken in the short loin. The exterior fat covering is very thin over the loin and generally almost absent over the short loin. The fat is white or creamy and may have a distinctly yellowish tinge. The flesh is soft, somewhat moist, generally slightly dark, and shows little or no marbling. Because of lack of finish the muscles slip or protrude easily, and this feature is very noticeable on all cut surfaces.

COMMON OR NO. 4 GRADE YEARLING BEEF LOINS

Common or No. 4 grade yearling beef loins are markedly lacking in thickness and fullness. The conformation is very poor. They are relatively long, thin, and dished or sunken. Usually there are thin, small patches of fat on the loin end, and practically none over the short loin. The fat is soft, slightly yellowish, and generally very inferior in quality. The flesh is soft, watery, and generally dark. Because of a marked lack of finish, the muscles slip or protrude very readily. On the whole, Common grade yearling beef loins present a very unattractive appearance.

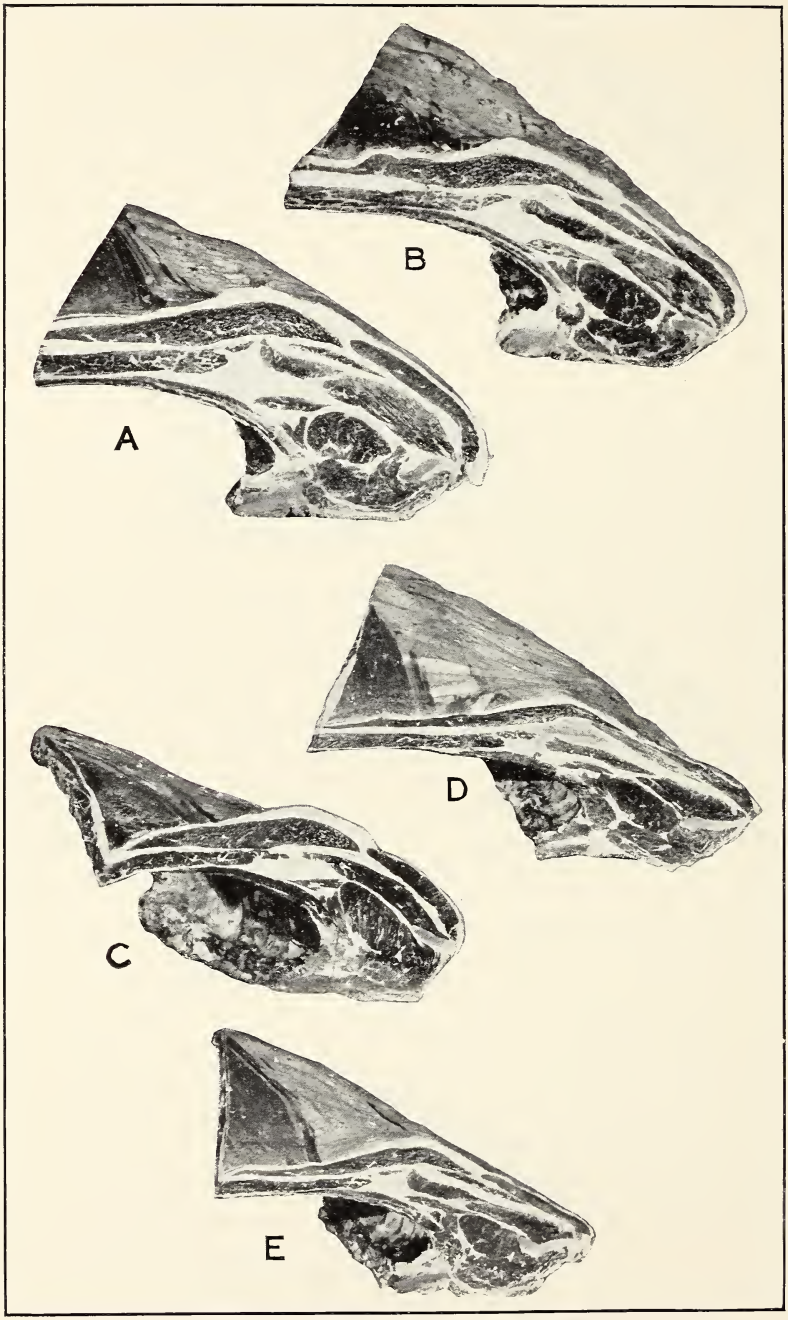
CUTTER OR NO. 5 GRADE YEARLING BEEF LOINS

Cutter or No. 5 grade yearling beef loins are from very thin and undernourished animals. They are very long, thin, and excessively flat or sunken and have practically no exterior fat and no visible



YEARLING BEEF RIBS (EYE END)

A, Prime; B, choice; C, good; D, medium; E, common.



YEARLING BEEF RIBS (CHUCK END)

A, Prime; B, choice; C, good; D, medium; E, common.

fat along the muscle seams. Because of their low quality they are not generally offered to the retail trade. The flesh is coarse grained, very dark, very soft, and watery.

GRADES OF YEARLING BEEF RIBS

Beef ribs, according to the Chicago method of cutting, represent approximately 9 per cent of the carcass weight. From the standpoint of market value they generally rank second to loins. In most cases the shape, covering, size of eye, and general quality of a rib indicate correctly the grade of the whole carcass. There are exceptions, but as a general proposition the grade of the carcass can be determined correctly by the quality characteristics possessed by the rib.

Sex characteristics are not nearly so pronounced in the wholesale cut of rib as in some other cuts. It is therefore difficult at times to determine the class if only the ribs from a carcass are presented. From the standpoint of quality, ribs of yearling steer and heifer carcasses are the same, grade by grade. Taken separately, ribs are graded by the depth, color, grain, and marbling of the flesh and the smoothness, depth, color, and quality of the fat covering. Interior indications of quality are the quantity of intermuscular fat and of the fat on the inner walls and between the chine bones. (Pls. 13 and 14.)

PRIME OR NO. A1 GRADE YEARLING BEEF RIBS

Prime or No. A1 grade yearling beef ribs are very compact and have unusual thickness and plumpness or depth of flesh. These things tend to give the ribs a massive, bulging appearance. Exterior surfaces are well covered with a moderately thick, smooth covering of white or creamy, firm fat. Attached to the interior walls and between the ribs are small ruffles or rolls of creamy fat. The flesh is firm, smooth, very fine grained, and velvety. There is an abundance of marbling through the lean. The color of the flesh is light red, slightly tinged with pink.

CHOICE OR NO. 1 GRADE YEARLING BEEF RIBS

Choice or No. 1 grade yearling beef ribs differ principally from Prime grade yearling beef ribs in thickness of fat and general finish. Choice grade ribs do not possess as high a finish as Prime ribs, but the quantity of fat and the degree of finish are ample to insure complete satisfaction to the most discriminating consumers. They have excellent conformation, thickness, and finish. They are very compact and well proportioned. The exterior fat covering is moderately thick and smooth, but not excessive. Its color is white or creamy. The flesh is firm, fine grained, smooth or velvety, and well marbled. Its color is light red, with a pinkish tinge.

GOOD OR NO. 2 GRADE YEARLING BEEF RIBS

Good or No. 2 grade yearling beef ribs are much above the average in conformation, quality, and finish. As compared with Choice yearling ribs they are slightly deficient in thickness and fullness and lack the generous distribution of marbling which is so characteristic of the higher grades. Good ribs are moderately thick and full, but

lack the bulging or plumpness of Choice ribs. The exterior fat covering is fairly uniform and extends over most of the surface. In comparison with Choice ribs the fat covering is somewhat thinner. The fat is moderately firm, white or creamy, sometimes tinged with yellow. The flesh is only moderately firm and shows some inclination to slip or protrude. Its color varies from light to dark red.

MEDIUM OR NO. 3 GRADE YEARLING BEEF RIBS

Medium or No. 3 grade yearling beef ribs have average depth of flesh and are deficient in thickness and general conformation as compared with Good grade yearling ribs. They are flat and generally present an uneven surface toward the chuck end. The exterior fat covering is moderately thin along the backbone and diminishes rather rapidly toward the lower end of the ribs. The fat is smooth and white or creamy, slightly tinged with yellow. The flesh is soft, somewhat dark, and its muscles protrude easily.

COMMON OR NO. 4 GRADE YEARLING BEEF RIBS

Common or No. 4 grade yearling beef ribs are thin, soft, and shallow. In general, they are much below the average in conformation, finish, and quality. The rib bones, though moderately covered with flesh, are prominent. Usually they have small strips or spots of exterior fat along the backbone and practically none on the rest of the surface. The fat is soft and usually slightly yellowish. The flesh is soft, moist, watery, and dark. Its muscles slip or protrude very easily, and retail cuts tend to separate readily.

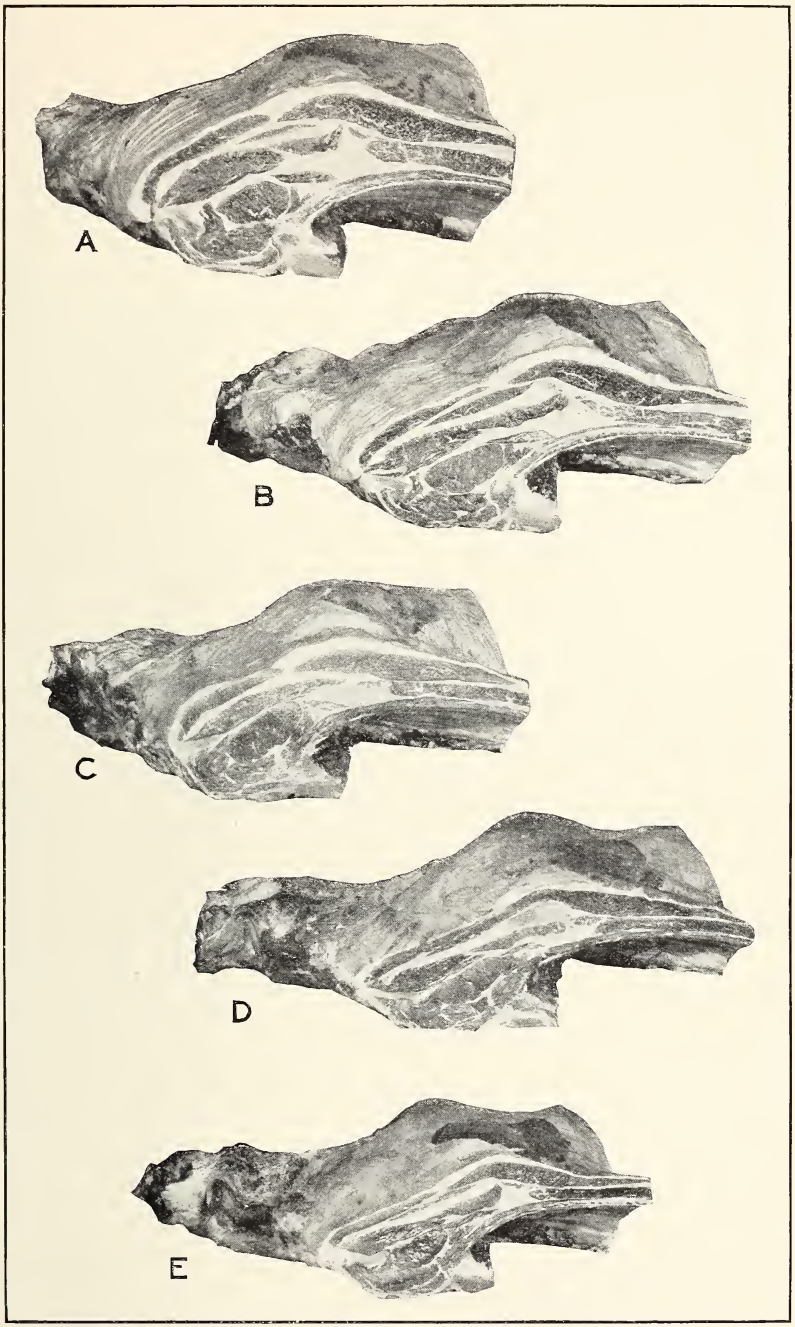
CUTTER OR NO. 5 GRADE YEARLING BEEF RIBS

Cutter or No. 5 grade yearling beef ribs are so very thin and generally lacking in flesh as to render them uneconomical for the consumer. The proportion of meat to bone is very small. There is practically no exterior or interior fat. The flesh is very soft, moist or watery, and dark. Ribs of this grade are usually boned and sold as boneless cuts or used in the manufacture of prepared meats.

GRADES OF YEARLING BEEF CHUCKS

According to the Chicago method of cutting, a beef chuck represents approximately 26 per cent of the weight of the side. It contains five ribs with the brisket and shank removed. At some markets the shank is removed by disjointing it at the shoulder; in others the shank bone is sawed through. In the New York market the "Manhattan" chuck includes the brisket, shoulder, and shank. In some other markets this cut is known also as cross cut.

Until recent years the chuck was classed as one of the least desirable cuts and not infrequently was exceptionally hard to move into consumptive channels. As the merits of the cut and its desirability for roasts, and to some extent for steaks, became better understood, its relative market value increased accordingly. As a consequence, chucks now sell relatively close to rounds in many markets. Chucks from steers and heifers have a very close resemblance. The factors which determine the grade of a chuck are conformation, quality, and



YEARLING BEEF CHUCKS

A, Prime; B, choice; C, good; D, medium; E, common.

finish. Quality is determined largely by the color, texture, and grain of the flesh and the quantity of fat deposits and covering. In general, the cut surface of the rib end may be regarded as the principal index of quality or grade. (Pl. 15.)

PRIME OR NO. A1 GRADE YEARLING BEEF CHUCKS

Prime or No. A1 grade yearling beef chucks are thick, compact, and relatively short and plump. The depth of flesh in proportion to the width from the backbone to shoulder end is especially noticeable. The heavy muscling and abundant fat deposits give it a heavy, bulging, meaty experience. The marbling and intermuscular fats are abundant. The exterior fat covering extends well over the surface, and the "rosette"[2] on the shoulder is well covered with a moderately thin covering of white or creamy fat. The neck is short, thick, and plump, and is well covered. The flesh on the cut surface is of an attractive light red showing a slight tinge of pink. It is fine-grained and firm.

CHOICE OR NO. 1 GRADE YEARLING BEEF CHUCKS

Choice or No. 1 grade yearling beef chucks closely resemble Prime chucks in general conformation and quality. The principal difference is in the quantity and distribution of fat. Choice chucks do not possess so much fat and are therefore not quite so highly finished as Prime chucks, but the desirability of the meat is practically equal. As a rule the fat covering is somewhat rougher than in Prime chucks, and it may not be so evenly distributed; the thicker parts are well covered, but the fat diminishes sharply toward the neck. The rosette on the shoulder shows considerable finish and is usually fairly well covered. The flesh is firm, smooth, and velvety and shows generous quantities of marbling. Its color is light red, slightly tinged with pink.

GOOD OR NO. 2 GRADE YEARLING BEEF CHUCKS

Good or No. 2 grade yearling beef chucks are moderately well proportioned and above the average in depth of flesh, conformation, and finish. They lack the fullness and thickness of Choice chucks and appear somewhat flat. There is a thin covering of fat over the upper part back of the neck, extending down over the thick part of the shoulder. The neck usually shows no fat covering, and the rosette lacks finish. Usually only small spots of fat appear on the rosette. The flesh is moderately firm, but the muscles show some inclination to slip or protrude. Its color varies from light to slightly dark red, and two or three shades of red may be present in the same cut surface.

MEDIUM OR NO. 3 GRADE YEARLING BEEF CHUCKS

Medium or No. 3 grade yearling beef chucks possess an average depth of flesh and are somewhat rangy or angular in appearance.

[2] "Rosette" is a commercial term and refers to a relatively small, thin piece of lean flesh on the outer surface of the shoulder. On beef from highly finished animals the rosette has a thin covering of fat. On beef from poorly finished animals the rosette has no fat covering.

This condition is due to a lack of fullness or plumpness in its various parts. The neck appears long and thin, and the cut throughout lacks symmetry. There is usually very little exterior fat covering and only small quantities of fat along the muscle seams. The fat is somewhat soft and has a slightly yellowish tinge. The flesh is somewhat soft, and the muscles slip or protrude readily. The color varies from light to dark red.

COMMON OR NO. 4 GRADE YEARLING BEEF CHUCKS

Common or No. 4 grade yearling beef chucks are thin, flat, somewhat irregular, and generally unattractive in appearance. Because of thinness of flesh the larger bones are more or less prominent. The neck is long and very thin. The exterior fat is limited to small spots along the upper part of the shoulder; there is practically none elsewhere. The fat is soft and generally has a yellow tinge. The flesh is soft, moist or watery, and generally dark. The muscles slip or protrude very readily.

CUTTER OR NO. 5 GRADE YEARLING BEEF CHUCKS

Cutter or No. 5 grade yearling beef chucks are for the most part so thin as to be undesirable for retail trade. The proportion of meat to bone is very small. These chucks are extremely thin and angular. There is practically no exterior fat or intermuscular fat; slight traces may be found on chucks from the upper range of the grade, and this is very soft and yellowish. The flesh is very soft, watery, and dark.

GRADES OF YEARLING BEEF PLATES AND BRISKETS

According to the Chicago method of cutting, two cuts—plates and briskets—represent approximately 12 per cent of the weight of the side. Taken separately, the plate represents 8 per cent and the brisket 4 per cent. The plate is referred to in some markets as the "navel." From the standpoint of relative proportions of fat and lean, both the plate and brisket possess a higher percentage of fat than do any of the wholesale cuts. This is particularly true of these cuts when taken from the higher grade carcasses. Until recent years these cuts were classed as the least desirable from the consuming standpoint and were generally sold below their relative market value.

Special attention has been given to the preparation of these cuts during recent years, and their desirability for particular uses has been stressed. They are especially adapted for boning and for curing as corned beef. They are now in better demand. The retail cut of short ribs is obtained from the thick-rib side of the plate. The grades of these cuts are the same in number as those of all other cuts. For convenience they are described together here.

PRIME OR NO. A1 GRADE YEARLING BEEF PLATES AND BRISKETS

Prime or No. A1 grade yearling beef plates and briskets are very thick and exceptionally well fleshed. The proportion of fat exceeds that of the lean meat, and the fat is white or creamy and firm. The flesh is firm, relatively fine grained, and possesses an abundance of

marbling. Its color is light red and, as in the case of the flesh of the higher grades of yearling beef, shows a pinkish tinge.

CHOICE OR NO. 1 GRADE YEARLING BEEF PLATES AND BRISKETS

Choice or No. 1 grade yearling beef plates and briskets are very thick and uniformly well fleshed. As compared with these cuts of the Prime grade they possess somewhat less fat, both exterior and intermuscular. The fat is of excellent quality, being firm, and white or creamy. The lean meat is also firm, relatively fine grained, and has a light-red color, with a slight pinkish tinge.

GOOD OR NO. 2 GRADE YEARLING BEEF PLATES AND BRISKETS

Good or No. 2 grade yearling beef plates and briskets are above the average in thickness, firmness, proportion of fat to lean, and general quality. As compared with Choice plates and briskets they are deficient in thickness and distribution of fat through the lean. The fat is moderately firm, white or creamy, sometimes possessing a slightly yellowish tinge. The flesh is moderately firm, but shows some inclination to separate when made into retail cuts. Its color varies from light to moderately dark red.

MEDIUM OR NO. 3 GRADE YEARLING BEEF PLATES AND BRISKETS

Medium or No. 3 grade yearling beef plates are above the average in thickness but somewhat below the average in so far as fat distribution is concerned. In comparison with Good grade plates and briskets they are thinner, more flabby, and less attractive. The fat is somewhat soft, and is white or creamy, with a slightly yellowish tinge. The lean meat is soft or moist and generally dark to a slight extent.

COMMON OR NO. 4 GRADE YEARLING BEEF PLATES AND BRISKETS

Common or No. 4 grade yearling beef plates and briskets are very thin, soft, and flabby. They have practically no exterior fat, and the percentage of intermuscular fat is very small. The fat is soft and slightly yellowish. The lean meat is very soft and dark. Because of thinness they are not desirable for corned beef.

CUTTER OR NO. 5 GRADE YEARLING BEEF PLATES AND BRISKETS

In general, Cutter or No. 5 grade yearling beef plates and briskets are not sold as fresh or corned beef. Because of extreme thinness they are not desirable for either of these purposes. In most cases they are boned out, and the flesh is sold as trimmings from which sausage and similarly prepared meats are made.

YEARLING BEEF SHANKS

Yearling beef shanks as a wholesale cut are relatively unimportant. They are generally sold either as a part of the carcass, fore quarter, or cross cut, or as brisket and shank. On the basis of grade the same differences exist, and when graded the same factors—conformation, finish, and quality—would apply as with all other cuts. Selection for

grade would be made on the degree of thickness, general proportions, degree of fatness or finish, and quality of the flesh. Grading would be a stepping-down process in which would be considered a combination of conformation, finish, and quality. Because of the relative unimportance of shanks as a commercial product, separate descriptions of the several grades are omitted.

CLOTH-DRESSED (SHROUDED) BEEF CARCASSES

The term "shrouding" as applied to beef refers to one of the newer methods employed as a part of the dressing operations. Carcasses of beef are split into sides on the killing floor immediately after skin and viscera have been removed; after this the sides are thoroughly cleaned and washed. The sides are then subjected to the "cloth-dressing" process, which consists of placing wet or moist heavy cotton sheeting or light canvas over the exterior surface. This material is fastened tightly with skewers to the breast and underline, then drawn tight and close over the side toward the back and again fastened securely on the inner side of the spinal column. The method is known generally as "shrouding." Cloth dressing tends to smooth out all exterior roughness and reduces the "patchiness" caused by excessive fat deposits on some portions of the side.

As the cloth is applied to the side before the animal heat has escaped, the fat is kept soft and spreads easily under pressure of the muslin cover. In general cloth dressing adds appreciably to the outward appearance of beef carcasses. It was first inaugurated in 1925 and is among the newer developments in dressing beef. The practice has become rather general, and most beef-slaughtering plants now make use of the method.

ORGANIZATION OF THE UNITED STATES DEPARTMENT OF AGRICULTURE WHEN THIS PUBLICATION WAS LAST PRINTED

Secretary of Agriculture	ARTHUR M. HYDE.
Assistant Secretary	R. W. DUNLAP.
Director of Scientific Work	A. F. WOODS.
Director of Regulatory Work	WALTER G. CAMPBELL.
Director of Extension Work	C. W. WARBURTON.
Director of Personnel and Business Administration.	W. W. STOCKBERGER.
Director of Information	M. S. EISENHOWER.
Solicitor	E. L. MARSHALL.
Weather Bureau	CHARLES F. MARVIN, *Chief.*
Bureau of Animal Industry	JOHN R. MOHLER, *Chief.*
Bureau of Dairy Industry	O. E. REED, *Chief.*
Bureau of Plant Industry	WILLIAM A. TAYLOR, *Chief.*
Forest Service	R. Y. STUART, *Chief.*
Bureau of Chemistry and Soils	H. G. KNIGHT, *Chief.*
Bureau of Entomology	C. L. MARLATT, *Chief.*
Bureau of Biological Survey	PAUL G. REDINGTON, *Chief.*
Bureau of Public Roads	THOMAS M. MACDONALD, *Chief.*
Bureau of Agricultural Engineering	S. H. MCCRORY, *Chief.*
Bureau of Agricultural Economics	NILS A. OLSEN, *Chief.*
Bureau of Home Economics	LOUISE STANLEY, *Chief.*
Plant Quarantine and Control Administration	LEE A. STRONG, *Chief.*
Grain Futures Administration	J. W. T. DUVEL, *Chief.*
Food and Drug Administration	WALTER G. CAMPBELL, *Director of Regulatory Work, in Charge.*
Office of Experiment Stations	JAMES T. JARDINE, *Chief.*
Office of Cooperative Extension Work	C. B. SMITH, *Chief.*
Library	CLARIBEL R. BARNETT, *Librarian.*

U. S. GOVERNMENT PRINTING OFFICE: 1932

NATIONAL AGRICULTURAL LIBRARY
1022831630